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ABSTRACT

Presented are 12 papers from a conference on the issues of secondary learning disability. Following an introduction are the texts of discussions from the conference's four sections covering an overview of the central issues, definition and identification, learner characteristics, educational priorities and objectives, remedial strategies, model programs, suggestions for instruction in reading and mathematics, language difficulties, vocational education, curricular and material resources, teacher training programs, and debates over key issues. A final section includes papers with the following titles and authors: "Curriculum and Materials for Secondary Level Learning Disabilities Programs--What We Have and What We Need" (V. Brown); "Math Curricula for Secondary Learning Disabled Students" (J. Cawley); "Psycho-Social Characteristics of Learning Disabled Adolescents" (D. Deshler); "Reading Problems of the Secondary Learning Disabled Student" (P. Gillespie and M. Sitko); "Survey of Secondary Programs for the Learning Disabled" (L. Goodman); "Adolescents with Learning Disability--Definition, Identification, and Incidence" (D. Hammill); "Exploratory Occupational Education for Learning Disabled Adolescents" (P. Irvine); "Toward a Taxonomy of Remediation" (J. Lerner); "Language and Speech Difficulties of the Adolescent Learning Disabled" (Sitko and Gillespie); "Adolescents with Learning Disabilities--The Problem in Perspective" (J. Wiederhold); "Process Remediation with Secondary Learning Disabled Children" (J. Ysseldyke); and "Preparing Teachers for Secondary Learning Disabilities Programs" (N. Zigmond). (SBH)

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LEARNING DISABILITIES IN THE SECONDARY SCHOOL

Title III: Curricular Development for Secondary Learning Disabilities

A conference sponsored by Montgomery County
Intermediate Unit 23 -- March, 1975
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The current conference concerns itself with the issues of secondary learning disability. It is a critical conference because at the present time it has become apparent that there is a large minority of disaffected and poorly educated youth among the pupils attending our secondary schools. If the field of learning disabilities is to attend to and provide some assistance to those problems as a distinct combination of disciplines, it is essential that it clearly defines its particular field of operations and narrows its services to remain within these limits. Otherwise, its efforts will merely represent an attempt at territorial aggression against those general educators working to come to grips with secondary problems.

Learning disability specialists should thus, before proceeding to establish philosophies and practices of secondary learning disability, clearly define the subject they are dealing with and then attempt to identify those methodologies that make their contribution to the solution of the problem unique.

As readers of these conference proceedings will soon discover, the above recommendations are far from easy to meet. They will encounter more disagreement than communality, more ambiguity than resolution. Yet such is to be welcomed for there is nothing that will do the emerging field of secondary learning disabilities more damage than the facile profferment of advice based on ignorance and presumption.

Those of us who live with the debris of broken promises and dreams come to naught of the two earlier decades of learning disability exploration certainly require no reminders to be cautious. It will be slow progress at best before working with the learning disabled student of more mature years may be able to show genuine progress. The papers and discussions of this conference we hope will be one of the beginnings of that progress.

Lester Mann, Ph.D.
Montgomery County Intermediate Unit

During the last decade, many educators, physicians and psychologists have focused their attention upon children with learning disabilities. Phenomenal progress was made on behalf of preschool and elementary school aged children with this handicapping condition. Unfortunately, little attention was paid to the learning disabled adolescent. Where support was being provided to this teenage population, it was limited to the efforts of one or two individuals or small groups of pioneer professionals in various regions of the nation. Their efforts lacked national cohesiveness and a common frame of reference for dealing with the education of the learning disabled adolescent in the secondary schools.

The Montgomery County Intermediate Unit Symposium "Learning Disabilities in the Secondary Schools," is one of the first attempts to provide conceptual and pragmatic direction in the development of services for adolescents with this handicapping condition. As a first attempt, the discussions of the participants were necessarily limited to delineating the problems, discussing research needs, and suggesting areas for program development. The participants, from various parts of the nation and with different backgrounds, brought considerable expertise to the development of a frame of reference in the education of the adolescent with learning disabilities.

The Montgomery County Intermediate Unit Symposium is the first step on a long road to providing quality educational services to the learning disabled in the nation's secondary schools. Much remains to be done but the first step, and perhaps the most difficult one, has been made by this Pennsylvania Intermediate Unit.

J. Lee Wiederholt, Ed.D.
University of Texas
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TABLE OF CONTENTS

Introduction

Dr. Lester Mann 2
Dr. J. Lee Wiederholt 4

Session I (Thursday) 9

Sessions II & III (Friday) 33

Session IV (Saturday) 129

Papers

Dr. Virginia Brown--Curriculum and Materials for Secondary Level Learning Disabilities Programs: What We Have and What We Need 175

Dr. J. F. Cawley--Math Curricula for the Secondary Learning Disabled Students 199

Dr. Donald D. Deshler--Psycho-Social Characteristics of Learning Disabled Adolescents 215

Dr. Patricia Gillespie and Dr. Merrill Sitko--Reading Problems of the Secondary Learning Disabled Student 239

Dr. Libby Goodman--Survey of Secondary Programs for the Learning Disabled 271

Dr. Donald Hammill--Adolescents with Learning Disability: Definition, Identification, and Incidence 291

Dr. Paul Irvine--Exploratory Occupational Education for Learning Disabled Adolescents 309

Dr. Janet W. Lerner--Toward a Taxonomy of Remediation 317

Dr. Merrill Sitko and Dr. Patricia Gillespie--Language and Speech Difficulties of the Adolescent Learning Disabled 333

Dr. J. Lee Wiederholt--Adolescents with Learning Disabilities: The Problem in Perspective 389

Dr. James E. Ysseldyke--Process Remediation with Secondary Learning Disabled Children 405

Dr. Naomi Zigmond--Preparing Teachers for Secondary Learning Disabilities Programs 419

Session I: Thursday Evening

The first of four conference sessions convened Thursday evening, March 13. The initial meeting was closed, attended only by the panelists, several Montgomery County staff members, and invited guests. While those in attendance, all educators, represented a wide range of professional backgrounds, positions, and points of view, they were united by a common interest in the field of learning disabilities, particularly the problem of the older learning disabled student. The purpose of the first evening meeting was threefold, to lay the groundwork for the sessions to follow, to highlight the central issues which were likely to be the focus of the symposium for the next two days, and, hopefully, to draw each participant into the spirit and purpose of the conference.

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WILLIAM ORHTMAN: It's a pleasure for me personally to join with you in the efforts that are put together here in this conference. I think it's unique in several ways, in format, and the fact that in a very short period of time word of mouth has raised the anticipated attendance of this conference from an estimated 100 to over 200. This says something to us as professionals in this field that this is an area of great concern.

I don't recognize any publications that have spoken specifically to the learning disabled child in the secondary school. We have a large number of children moving through a school system and who will be moving into a secondary program. Those of us in Pennsylvania are greatly concerned about the limited resources that are before us--ways from which we can get the best from those resources that we do have; those resources in turn really do the job to measure quality of effectiveness in education. Our budget for special education next year in appropriation is increased by 10 percent. We at the same time, by board action today, are going to extend the right to education by due process to all the handicapped. This means that we have a major job. One of the things that came out in the discussion today was a definition of who are the learning disabled; how do we define them; how do we then go about reaching those children in an educational sense. It seems to me that it is through the leadership of persons like Lester Mann, who are persistent in keeping all of us moving forward and looking at new dimensions, we are looking at new ways of discovering what can be done on behalf of exceptional children. We are very proud Les, of you and the staff in this intermediate unit, and all associated with this conference and its efforts, and we wish you well and pledge our support in any way we can. Thank you for inviting us.

DENNIS U. HARKEN: First of all, I'd like to welcome all of you to Pennsylvania, but that's a little weird since I've only been here about 6 or 8 months myself, and I'm not sure that I've figured out what's going on around here yet. Bill Orhtman told you a little about the special ed problems that we are facing in this state. We put together, last summer, a budget that we figured would handle everything that was right then expanded, and that came up to 30 percent minimum on our county loan, so you can tell that we're faced with 10 percent.

I'd like to tell you just a little bit about the rest of the I. U. program because you are all seeing our special ed people and Les, who won't talk about anything else except special ed. The Intermediate Units of Pennsylvania are governed by a 15-Man Board of Directors, and local boards. The Montgomery County I. U. is one of the largest in the state quantity wise, and I think quality wise number one.

Special ed is running us about $5,500,000 this year. Our total budget is a little over $15,000,000. We run services to non-public schools that total, I'm going to miss a million or two here so don't let that bother you, a little over 2,000,000 and federal projects somewhere around three or four, and vocational technical schools somewhere around three, and assorted services that add up to 1,000,000 or so; if that doesn't add up to 15,000,000 I'm sorry, but that's what it should come up to. The Intermediate Units in Pennsylvania are probably, as you look across the country, the strongest Intermediate Units, I feel, with possible competition from the BOCES in New York. We have somewhere in the neighborhood of a thousand people on our staff that are on contract or through a contracted service of some type. I'm planning on being here tomorrow afternoon and I hope Saturday morning. I wish you the best. I think you're going to find the people you'll be working with very receptive to your presentations and possibly argumentative at some times. I'm not going to tell you what Les said to me today about people who think they know things about secondary learning disabilities. Perhaps he'll relay that to you later on. Welcome to Pennsylvania, I'm glad to meet all of you, we'll see you again tomorrow.

LESTER MANN: Again, I too would like to welcome you in the name of the Montgomery County Intermediate Unit and the Division of Special Education for which it stands. You are among friends and it will be in the spirit of participation rather than confrontation, regardless of the philosophies and practices that we all hold, that we will join together in an attempt, if not to solve the problems of L. D. of the secondary level, to at least understand some of the problems, and to establish some of the questions that should lead inquiry into this major area of concern. And it is a major area of concern. In fact, it's ironic that today, at a time when we are talking about mainstreaming, general education is turning to special education and asking it to help in terms of classroom programs at the secondary level for a chronic hardcore of school failures. Education must face up to these failures or, if it cannot properly educate these pupils, to at least face up to its limitations or the limitations of those who cease to educate, and take some other course than that of universal literacy that it proclaims to being the goal for itself and for the nation. But the statistics are grim. Recent reports show that all but one third of the nation's graduates from general education either leave school or graduate from school with less than functional literacy. Are we to accept, as the standard of literacy, the ability to fill out the form for food stamps or a form for a driving license? They can't even do that, one third of the nation or more. We know also, from decades of research, that no matter what we do in reading, that approximately 40 percent of the youngsters come out of school unable to comfortably live with reading or master its fullness. So, indeed the problem is a large one. And general education faces its failures and asks us to help in dealing with them. Now the problems we are facing are many, and difficult, and emotional. We won't solve them but certainly we should be addressing some of the more critical ones and the questions again that are associated with them. I would like to have you consider the following: what constitutes the secondary learning disabled child or student? Are there unique characteristics that will distinguish him from the slow learner? The socially deprived; emotionally disturbed; the poorly taught? What is the technology that practitioners in the field of secondary disability can bring, and should bring, that will distinguish their efforts and hopefully their results from what is both sought and obtained by existing secondary programs to the general education, regular and remedial? At this point we'll hold the floor open; we have Montgomery County specialists here, and I'll ask them to establish some questions and problems from the floor. Joyce, would you want to begin?

JOYCE NESS: I think as I begin to become involved with secondary or adolescent LD students and the needs of school administrators in establishing programs on the intermediate school and the junior high school level, the one question that they ask most often is, how can we best serve this age learning disability student? As educators, should we emphasize and try to remediate their lack of reading, math skills, basic skills areas, or should we in fact, put our emphasis on preparing these students for life? What types of things should we dwell on? I think that is one of the prime questions that people in this area have. Where should our emphasis be? Should it be a dual focus, should it be a last ditch stand, a last push for basic skills? What are our responsibilities to these students?

LESTER MANN: Thank you.

MARIANNE PRICE: May I add something to that along the same lines? We feel that if you want to make intelligent decisions for these children as to whether we are going to emphasize academic skills or whether we are going to emphasize free vocational training or vocational things, that we're going to have to look at these children in a different way than we look at children at the elementary school level. At that level, we tend to look at their math skills, their reading skills, spelling skills, etc., but we are beginning to have the feeling that at the secondary level you have to consider a more complex set of skills; you're going to have to think in terms of motivation, verbal expression, written expression, really looking at the whole area of language arts. And I feel that we don't seem to have the tools--at least we're not familiar with the tools.

LESTER MANN: Thank you. Lynn. . . .

LYNN ZENTNER: I think one of the concerns we've had, going from the elementary level to the secondary level, is that the elementary level has been very concerned with competence based programs and the objective reference tests, etc., and we have a very difficult time with these at the secondary level. We have a difficult time developing hierarchies of skills so that when teachers find specific weaknesses here and there they know what kind of hierarchy to utilize and what kind of test to use along with it. We don't have the kind of control with our curriculum at the secondary level as we do with the elementary so that we really know what's happening with this child's program. Another concern, I guess, that I have is for a sound reading program. We find a couple of differences. We find some kids who really need some developmental skills. We find other kids who can really take the fourth and fifth grade reading level and require training in comprehension. And that's very hard to come by at the secondary level.

LESTER MANN: Thank you. Molly. . . .

MOLLY STITT: They have covered many of the problems I've run into, but I am going to go back a step further as referral; what types of criteria do we give to the school district or does the school give to us for placing a child into a secondary LD program? How much emotionality is involved for a youth frustrated for so many years? I know a lot of the applicants we get to be screened. Maybe the definitions for the secondary level are quite different than from the elementary level.

JACK EELLS: I think there are three things that I have on my mind. One is the kind of input we should have with the secondary LD youngster. How much do we need to know when we take on a youngster in a secondary or intermediate level that maybe we don't need to know with a primary age youngster or that we don't get with the primary age youngster? After a 10, or 11, or 12, or 13 year old youngster or 14 year old youngster has had X number of years of failure does that add any more kind of input to what we need to build from?

The second thing is materials and methods to be used with the secondary youngster. The thing that we usually do, in my experience, is taking what we use for the primary youngster and trying to use them for the older youngster.

JAMES DUFFEY: I think it's already been inferred, but there certainly are questions about the existence of secondary LD as an entity in itself. It may be a "hodgepodge" of things which have been inferred by your statements, and to kind of echo what Molly said, if we are going to think that there is such an entity or at least pretend that there is by having programs, we have to give the gatekeepers, the people who must identify secondary learning disabled children, reasonable guidelines for this identification. And the guidelines that have been established for the elementary LD certainly are not adequate. So I think that's the biggest question that I have.

NANCY ANDERSON: I think that our work with the secondary LD kids has shown that there aren't too many who don't have such an emotional overlay and that a different program and philosophy is indicated. I think that in our work with the youngsters with learning disabilities, as well as emotional problems, that emphasis on career training exploration in terms of work experience programs is essential for motivation. And I think that techniques of developing appropriate work experiences and career exploration are essential here.

LESTER MANN: Thank you. I'd like to ask Dr. Bill Streissguth from the NLRC/P to perhaps express some of his concerns since he really has a statewide duty to provide new technology to the field. We see here an organization set up by the Bureau of the Handicapped which in effect, I dare say, is not too well known to people working in the learning disabled field. And it's very surprising to me that there is such little communication over two organizations, two groups which are really directed to much the same purposes in many areas. So--Bill. . . .

BILL STREISSGUTH: Thank you. Our organization has been working with a wide range of handicapped, of which LD was a focus primarily in Montgomery County. We have tried working with older children in an LD program and it has had some success in the Lancaster school programs. We worked with some older, middle school children--eighth, ninth, tenth graders--and a lot of emphasis went on in prevocational training. I don't mind saying that I think that one of the concerns that I have, which may or may not fit with your beliefs here, is that all too often when we talk about LD we are still thinking about the kind of regular academic orientation that we've always had. I'm not too sure that when a kid who is learning disabled, in reference to what we think he should have in a school setting, goes out into life and has to cut it with a job or with other kinds of things, that academics really make a difference. Is there really a disadvantage in competing with the kind of market that is there? And I don't think we've done nearly enough to experiment or to find out how serious that learning disability really is in reference to other aspects of life beyond the immediate academic education, and I sure would like to see people talk about that.

LESTER MANN: I'd like to ask Paul Goode, who is associate director, to say some words on this.

PAUL GOODE: What I would like to be concerned with from a conference of this sort, would be getting back to what some of the IMT's talked about. Specifically, what are some of the objectives that we have for these kids? And if we talk about objectives, what kinds of instructional objectives are there, and what kinds of materials can be used and what methods are appropriate for these kids? I think that's one of the areas that the National Learning Resource Center of Pennsylvania would be concerned with.

LESTER MANN: Thank you. We see Dr. Kalapos back there guarding the door carefully. Bob is well known to you all and he directs Regional Resources

Center and the PRISE Organization of Pennsylvania and a few others, including SESIN. So Bob. . . .

BOB KALAPOS: The problem is that secondary programs for learning disabled children are, quite frankly, nonexistent. We get requests and requests--what is the research--what is the curriculum? Please send me 15 curriculum guides on the best. They don't exist. Please tell me the material that will work today with a child--it does not exist. I'm a fourteen-year old--please give me the prescription--it does not exist. I'm suggesting to you, quite frankly, that the area of secondary learning disability does not exist and that programs and curricula--they do not exist. I am not suggesting that they shouldn't. I am saying to you, that on the basis of medical research, educational research, it does not exist.

LESTER MANN: We have two final participants before we have some comments by Libby, and before we proceed to our panel itself. First of all, I see Mike Reilly back there, and Mike is responsible for our educable mentally retarded programs. In fact, the question must be raised certainly, does EMR and LD really differentiate from each other at the upper levels in terms of programs and expectations? Mike can you perhaps add some words on that?

MIKE REILLY: Yes, I have a concern, I think the EMR's have a greater problem achievement wise, but I'm still concerned with the problem all the same. I'd like to see you address yourselves to the motivation factor. When we get a child who is 12, 13, 14, and 15, who may have had years of unsuccessful different methods, techniques, and programs, we have a larger problem. I would like to see us generate some thinking on this level.

LESTER MANN: Fine. Now Carol Bradley is here as an observer from Iowa; she comes to us with a great deal of expertise.

CAROL BRADLEY: I guess maybe two points haven't been mentioned. One would be, Lester you said something about general ed asking us for help. I think we're making a great mistake if we sit as special educators and design programs and lay them on general education. I guess one of the things I'd like to see, maybe not as a result of this conference because we've got to start somewhere but indeed in the long-term thinking, would be a real look at tapping other resources than our own, particularly for the large population of kids who are in trouble, and who financially and personnel wise we simply cannot afford to help freely. We simply can't afford to take all of them under the rubric of learning disabilities and special ed. So, I'd like to see us maybe get involved with general education in terms of them defining their responsibilities and asking general ed to expand their age of programming; which I think, practically speaking, will help us define the special population which we're going to have to then deal with in special education.

LESTER MANN: That was a very tempered response that will be appreciated and now I'll turn to the panel itself. I will begin with Jim Ysseldyke and just pass around the table for any opening comments, brief comments for things we might discuss or consider or cogitate about.

JIM YSSELDYKE: I think that many of the things that I would have to say regarding the field of secondary learning disabilities have already been touched on by the Intermediate Unit personnel. I have some problems with the whole field of learning disabilities in general, and it starts right out with the whole thing we have been dealing with for years and years and years and that is a definition of who in the world we're dealing with. I have problems with basic definitions in the area of learning disabilities focusing on process deficits when we can't identify what in the world it is we're talking about when we talk about process deficits. I have some questions that are even more critical from a measurement standpoint, and I'm at the point now where I'm questioning ethically, what in the world we're doing in the public schools on behalf of learning disabled kids. I question the implementation of untested and unvalidated programs in a wholesale fashion at the elementary level and I see it happening at a secondary level right now. I was given a topic for this conference on process remediation with secondary LD kids and frankly, I can't really deal with that at this point. And so, I've dealt with it in a way that is the only way we can deal with it right now and that is to ask some very straight forward serious questions regarding what it is we're doing. And with that I'll just pass on to some others.

ED SUMMERS: I see the whole problem of general education at the secondary level in somewhat of an historical perspective. I guess it's my German nature, but as far as I'm concerned there's no doubt in my mind that for the last forty to fifty years we've been in a great period of experimentation, asking whether we can follow through on our verbal behavior as to what secondary education is all about in the performance factor. This is just another step along the way in terms of finding and looking at kids, who bounced off the secondary achievement subject matter- content type of process. There are a lot of people, by the way, in secondary education who have been working with this problem--crying in the wilderness for a long, long time. And I'm glad to have special education aboard--welcome to the club. The underachiever in the secondary school curriculum faces the problem of motivation, as well as the problem of inappropriate programs that try to match up kids and put them in molds--molds are for jello not for kids.

VIRGINIA BROWN: I just wanted to say Amen to everyone in terms of the questions you raised, because maybe this is going to be a very unique conference in that everyone who is participating is saying--what are we doing here? And the topic that I had was "Curriculum and Materials." I guess the conclusion I had was, don't develop a kid, or a curriculum that says "The Curriculum for the Secondary LD kid." I'm just very much concerned that it might all sound good theoretically and in the abstract, but what about the kid with whom you're dealing? And the kid with whom you're dealing is one who is very different, as people have suggested here, a very different animal from the elementary kid who hasn't had such a long history of becoming a unique individual. What I'm saying is that people who say, well, we'll just lay the elementary model on secondary kids when people really don't have a long history or any experience with the normal range of secondary behavior, or what's happening in secondary education and then say--we're going to work on long and short vowels. That's the last thing in the world that any adolescent kid is interested in. It's going to take a lot of creative talent to pull together what's going to happen with individual kids in the secondary level.

LESTER MANN: Thank you. I would like to announce at this point, this is parenthetically, that the inspiration for this conference was generated by Libby Goodman together with Lee Wiederholt who was our LD consultant last year and you all remember L. T. I. So that Lee in fact, was one who proposed it to us for an area that was fruitful for investigation and, Lee. . . .

LEE WIEDERHOLT: Thank you Lester. I've heard so many things here tonight that I'd really like to reflect back on, but I know you all want to get back upstairs. I think one of the best things I heard from my friend here was that when they were talking about the whole child, Lester said "I never saw a half of a kid." So, where are we coming from to talk about the whole child? I think historically that I would have to agree with you. I've had an opportunity to work with Carol in Iowa and other states where they are moving on secondary. Essentially there are a lot of people focusing on this problem now and it was only two years ago that the Bureau of Education for the Handicapped asked the Leadership Training Institute to write a report on the status of the secondary. There's not too much done, but from what I see in the country, and I've been visiting places in the last year that have started secondary LD programs, there is a lot of good stuff and I hope to be able to share some of it with you as time goes on. I don't think we have the answers of course. It reminds me of the time, and anyone who knows me well knows the story, when I was sitting in a teacher's lounge and talking about mainstreaming and a teacher got up and said--mainstreaming, mainstreaming well I'll tell you this--it's no panacea. Well, we don't have any panaceas. But we can begin to make some decisions, we can begin to do research, set research policy and direction; we can begin to train teachers in what we do know and maybe in ten years we'll be much better off and the kids will be much better off than they are today.

DONALD DESHLER: I think my primary concern is one that Lee touched upon and that is hoping to come from this conference with a lot of closure. I think there is one thing that we all came here with, and that is more questions than we've got answers, and if we can learn anything by looking at the historical perspective it can be that when we try to closure too rapidly, we find that we have to sit back and retrench and try again. Hopefully, through gatherings like this, we can more clearly articulate our questions before we come to some definite answers. I would also support some of the points that were raised this evening; one of the crucial issues that I hope we can get some good interaction on is the interface between regular ed and special ed in the definition of the role that each of us is going to assume.

LESTER MANN: I think that is a critical question and a critical issue certainly. Perhaps the most critical issue to be confronted, really, and to be solved immediately. Janet. . . .

JANET LERNER: Well, I'm not too concerned about defining the LD adolescent, particularly in the last week, as I hear that both the law profession and the medical profession are juggling with defining life and death and they're basing their field on that, and I feel that our problem is much too big. As I get feedback from people working on the secondary level in the metropolitan area of Chicago, the greatest problem seems to be not a technical one of how to test or how to teach or what materials to use, but a managerial one. They say that the biggest problem is not the students, not the children, they're not children at that age, they're youths, or, I don't know what term we should use exactly--but their teachers, the high school teachers. And they say that it's convincing the high school teachers that they should make adjustments in their high school program and they can do things, is the biggest problem that they have to tackle. The administration, the guidance counselors, working with paraprofessionals and so on, constitute a managerial problem that I see as the biggest one at the high school.

BOB KALAPOS: May I simply relate to that? I think one of the things that we ought to consider is whether there, in fact, are learning disabled teachers? In fact, are we talking about learning disabled teachers or learning disabled students?

DON HAMMILL: If we can't decide just who it is we're going to apply our attention to, then it is a little bit ridiculous to tell other people what to do with youngsters whom we ourselves cannot define. To me, the basic issue therefore, is to decide who we, in special education, learning disabilities, are going to devote our attentions to. We have yet to decide whether or not we are going to be a program that is going to educate truly handicapped children or whether we are going to abandon special education entirely and put on our white suits of armor and go in and reform "American Education." Who, incidentally, is not going to accept our attentions with open arms. Especially since we have not shown that we can even teach the children whom we have been attempting to teach up to this point. I think essentially, the basic thing we have to eventually face in learning disabilities is to overcome the one thing that I'm sure we will be completely incapable of doing and that is overcoming our greed. We're going to essentially have to cough up hundreds of thousands of children that we have tried to swallow and digest and label as learning disability cases, whom we call handicapped, when their main problems are that they just don't read and write or talk too good--and give them right back to the same people from which we got them--mainly regular and secondary and elementary ed. Now, if secondary and elementary ed want to fund programs for these kids out of their own money and support systems for their operations, that is well and good, but let's not let one nickel of handicap money go to these kids.

MERRILL SITKO: I just wanted to agree with the perceptions given tonight, essentially that learning disabilities is in a mess. I've had the chance to view the field not only from the perspective of American education but also Canadian-British education. And the same problems hold true elsewhere, so it's not just a problem germane to the United States. My area has not been from the point of view of my perspective as a practitioner, but mainly as a researcher, theoretician, etc., and I can't answer the questions that have been raised tonight. All I can tell you is that from the point of view of what I would call sound research, and there is very little of that in the field, that we can't give you answers of, for instance--what is the definition of learning disabilities, because there are so many other disciplines involved in the field that have their own perspective. The two papers that I was involved in--the language paper and the one that Pat Gillespie did on reading, tend to cover pretty well what I would consider three quarters of the field in terms of language and reading problems or difficulties. But you find them in most definitions of learning disabilities. And, as you find out tomorrow in our papers, we do not have educationally relevant, valid, reliable tests--not just not for adolescents but for our children. First of all, in terms of developmental theory and child development, the field of psychology hasn't that much to offer, except beyond the little bit that Piagetian theory, and some other information of what I would call cognate information processing theories, have given us. We really can't tell you very much in terms of diagnosis. We can't tell you very much about sound valid programming at both child and adolescent levels. And someone mentioned career education. I think that's in a worse mess, because if we just look at the field of EMR, we find that there we have failed miserably; never mind learning disability, where we are supposed to be dealing with children of intelligence. So, the way I look at the field, I think the research has to come from within; it has to come from within the classroom, and there our assessment has to be in situ. We have to find out more, in terms of research, about what are the processes that we're talking about. What are the problems when we do a learning analysis of the task? What is it that children are having problems in? What types of information processing problems are there in terms of task analysis? What are the demands that you as a teacher are placing on that child? What are your behavior objectives? Do you, in fact, have any behavioral objectives in terms of your lessons? Are you using your lessons as diagnostic types of assessment; things to give you some information about what might be, what we term in the ball park hunches, or to hypothesize what the problem might be? You won't get it from global tests. You might get something from criterion referenced tests if we ever decide how to construct them and go beyond the 80 percent criterion. My field has not been learning disabilities. It has mainly come into this from mental retardation, but the same things hold. I did a review of language and language behavior of the retarded a couple of years ago, and it's the same type of findings. I think in special education that we've been kind of accused of a hardening of the categories. I think that's particularly true in learning disabilities. I think we have to get out of the definition, as Don Hammill says, or at least find out what we're talking about. Or, if we are talking about certain homogeneous, if there is such a thing, sub-classes of children, then start coming up with the type of treatments, individualized treatments pertaining to that subset of the population. And only multivaried types of studies will give us some hypothesis there. So, I'm not sure if I go as far as saying there is no field of secondary LD because I think there are some programs that do make a difference in certain situations. Again, I think I have to emphasize situations, because I think problems of LD kids tend to be situationally specific. The best case I can think of is the socio-cultural aspect. Most definitions of LD do not include culturally deprived children. Which is ridiculous! We can't talk about our cultural problems now anyway but we can talk about correlates; things that are experiencial socio-cultural problems associated with learning problems are socio-cultural factors. To say that we're not going to look at those and we test the child, take him out of the classroom, and give him an ITPA and find out he has certain types of linguistic processing problems and look at the same child in the playground or at home and find out the child is functioning very well in that adaptive environment--it's ridiculous. So, I guess what I hope to come out of this conference with, is an attempt at some types of needs analysis of what's needed in the field so we can start doing the prepared course of research that's required.

PATRICIA GILLESPIE: I think that it's inevitable that we have such a conference at this time because in secondary education we're paying for our mistakes. In the early sixties we told parents that their children were learning disabled, dyslexic and abnormally brain dysfunctioned. In the meantime, these kids were growing up and confronting the secondary schools and the colleges and the parents haven't forgotten what we told them in the sixties, that their children were brain-damaged dyslexic and they needed special programming. But between the sixties and the seventies we have found out that our assessment techniques, our programming, lacks validity; we haven't been able to show the efficacy of such programming, these children still have the same problems. While the lay people are not forgetting our mistakes in the sixties, I think we are paying for them in the seventies if you look at all the literature right now. It's very popular to write articles now about not knowing what a learning disabled child or adolescent is. Yet, in the sixties all of us were guilty of writing articles about describing their characteristics. At least most of us. I think that we have engaged in a great deal of superstitious behavior in learning disabilities, in our programming whether it's the Fernald Technique or the Multi-Sensory Technique or whatever, and drawing from it a great deal of alternatives and not knowing whether these are going to work. And now we see that these kids have faced us on the secondary level and still can't read, "I still have math problems," etc. They still have a problem. I hope that out of this conference, instead of coming out with a great deal of cynicism and a few more articles we can write about as to how we don't know what an LD child is, we can make some positive statements about programming, whether it's in regular or special education, that might make an effect on some adolescent's career or vocational choice or whatever.

NAOMI ZIGMOND: I think that this conference is important, but it's discouraging to me partly because about 15 years ago when I entered the field, I entered it with a great deal of optimism. You found a child, he was learning disabled, but mostly he was teacher disabled. That is, if you could figure out what was the matter with him and what to do with him, he would be fine. And the whole field of learning disabilities has this great optimism. I think that our program this week is an indication that we haven't fulfilled that optimism. Very few of the kids that we see in those programs are newly identified when they enter a middle school. Most of those kids are kids that the teachers that I trained went out and taught, and didn't do a very good job teaching. And, I find it very discouraging that we are faced with a very real problem--what to do with kids when they enter a middle school or high school, when we don't even know what to do with kids that we said we solved the problems of already in the past ten years. I don't think we know how to teach those kids, and I don't think we know what we're teaching those kids. The secondary level child is an indication of this failure; not only our failure, but the failure of the regular schools to accomodate those children. And I'm worried that if we focus our attention at the secondary level and at what to do, that we absolve ourselves of the responsibility of making better what we've done at the earlier level. The more we develop special programs for more special children, the less we have to retrench and figure out why it is that they are still there. I think that's a real concern of mine. I see it from the teacher-training standpoint. And at the teacher training level we don't know so many things. We don't know what it is we're going to expect our secondary kids to be able to do. Where are they heading, what is it that they really have to know in order to make it, not only in school, but in life? And we have to decide that before we can figure out what it is that we have to teach them.

But there are so many things that we don't know that it's very hard to sit down and design a program for preparing the teacher to do something when we don't know what she has to do. What is it that's essential for her to be able to do, or him be able to do? In any case, I hope the conference leaves me more optimistic than I am when I start out, but I find that the concept for the secondary learning disabled child is a discouraging concept for the field and that it is an indication that we failed somewhere along the way.

LESTER MANN: And another participant is one who labors in the public school vineyards as we do here in Montgomery County. Paul. . . .

PAUL IRVINE: The area which I've been asked to develop in this conference has to do with us using some practices in the occupational preparation of learning disabled adolescents. Getting into the literature in this area has been at least as discouraging as what Naomi was just describing because there is no literature. I had a search made in the ERIC system for literature on occupational education, vocational education, and career education for the learning disabled and I came up with not one single reference. One reason is, I hope, many of the adolescents, by the time they get to this stage, have dropped the labels that we unkindly stuck on them earlier in life. But, it seems to be there are some major issues here and that generally we have neglected to give careful attention to what vocational preparation learning disabled pupils are entitled to and need along with many other kinds of handicapped pupils. But, it seems to me that this is a terribly neglected area even in the states such as Pennsylvania and New York, which I know have made a commitment to providing occupational education for all high school students. The programs are sadly lacking, and the youngsters with learning handicaps really get short shrift. I hope that we can give some attention to this, and stimulate some activity.

LESTER MANN: Thank you very much. And for a finale, Professor Jack Cawley. Jack would you please. . . .

JACK CAWLEY: I feel out of place, in a way, because I'm a retread. I came from seven years of secondary school teaching at a 3500 pupil high school--a math and science teacher. I'm not nearly as pessimistic as anybody else. I see no reason why a kid has to be able to read to learn science, or math, or anything else. As a matter of fact, a couple of you notice that we built the homemade ITPA out of physics. What I'm suggesting is that I think that while it's alright to change the child, I'm not so certain that if we try to change the system it wouldn't be easier and we would be much better off in the long run. If you say to a secondary school physics teacher, man look, you can teach all your physics to all those kids just by not doing these one or two things--you may blow his head right off. I'm not as pessimistic in that sense. I think the secondary school teachers can be had. So, I would just kind of suggest that maybe things aren't as bad as we might think. It doesn't always have to be a kid-change to deal with, I think we can go about a system change.

LESTER MANN: It's nice to catch up with an optimistic note this evening, and I'll ask Libby to make the final remarks and then we'll close.

LIBBY GOODMAN: I think my feeling, after listening to all the comments that have been made here this evening, is that we certainly don't have any consensus, if there is one it's that we don't know what we're doing; we don't know what the secondary LD child is; we don't know what to teach him if we can find him, etc., and so forth. Well, in that case this conference is terribly important if we can begin to focus on the appropriate issues, the important questions, get rid of some of the flack and some of the things that aren't really that important and come down to some key items that we do have to think about and work on in the next few years. The people who are coming tomorrow are going to be there because they are being pressured now, by parents, by administrative people, by school boards to develop programs for LD kids. I think we'll be doing them a service if we take them back one step, or perhaps two steps to some of the basic issues that have been brought up here today. I think that they really are expecting us to tell them what to do with those kids Monday morning. And we're going to have to change their thinking somewhat, and if we can send them away with some questions, perhaps not that many answers, but with some good questions, we'll be doing them a service. Just to close, I'd like to say that it would be nice if I could say that this is a first, that there is no other group that has ever come together to look specifically at the problems of the adolescent with learning disabilities. Well, that's not quite true. If you recall the Fund for the Perceptually Handicapped, they brought a group together at seminar in 1968, and they talked about the adolescent and I think it was the fifth year, fifth annual convention of ACLD, they also focused on the adolescent with learning disabilities. However, in just that short period of time, the scope of those conferences, those small seminars and what we're trying to do here in Montgomery County for the next couple of days, I think has come a long way. I'm very encouraged by the caliber of people that are assembled, by the quality, the depth, and the importance of the things you've said and I think we're going to have a very worthwhile conference.

LESTER MANN: Thank you again.

Session II and Session III: Friday

Friday's activities, both in the morning (Session II) and in the afternoon (Session III) were open for the benefit of educators from Montgomery County and throughout the Commonwealth. The panelists, drawn from leading American universities and including one representative of the University of British Columbia, spoke on key issues relevant to the education of secondary students with learning disabilities. The topics were preselected in order to ensure a comprehensive and well balanced program. The reader should agree that this goal was achieved.

The morning presentations dealt with the topics of definition and identification, learner characteristics, educational priorities and objectives, remedial strategies, model programs, and past accomplishments and future directions for the field of learning disabilities. The afternoon presentations leaned toward the more practical and applied, and included reading and mathematical problems of LD youth and some suggestions for instruction, language difficulties among LD adolescents, vocational preparation, curricular and material resources, and teacher training programs. Audience participation was invited and encouraged throughout. Question and answer segments were recorded and have been included in the transcription of the conference proceedings.

Participants - Session II

Lester Mann	- Director of Special Education Montgomery County Intermediate Unit Blue Bell, Pennsylvania
Libby Goodman	- Coordinator, Learning Disabilities Programs Montgomery County Intermediate Unit Blue Bell, Pennsylvania
J. Lee Wiederholt	- Associate Professor University of Texas Austin, Texas
Donald Hammill	- Austin, Texas
Donald Deshler	- Assistant Professor, Learning Disabilities University of Kansas Medical Center Kansas City, Kansas
James Ysseldyke	- Assistant Professor of School Psychology Department of Special Education Pennsylvania State University University Park, Pennsylvania
Janet Lerner	- Department of Special Education Northeastern Illinois University Chicago, Illinois

SESSION II

LESTER MANN: Ladies and Gentlemen--good morning. We have been waiting for participants because this was in fact a pre-registered conference; many aren't showing, because they are from great distances and apparently there are problems in getting here, so we won't delay any further. We're sure they'll be spreading in as the day goes by. We wish to welcome you here this morning, and we encourage your participation. As you see, there are microphones set up in the aisles to facilitate communication with the panel. The interest this conference has generated to the public and to the educational public has been rather remarkable. This was a subscription meeting and in fact we turned away about twice as many as who are here this morning--or who will at least try to be here this morning. The reason being of course, is that secondary learning disabilities is an area of great concern to general education and to special education.

We now know from recent studies issued by, I believe, the NIE that approximately 36 percent of the general school population leaving school or graduating comes out without functional skills in reading. That is, they cannot fill out driver's license applications properly, they cannot apply for food stamps, certainly they cannot make out their income tax. They can barely manage directions for simple employment. This is 36 or 37 percent of the general school population, not the handicapped population. We also know, as we were discussing last night, that approximately 40 percent of the population has continuing problems in learning to read and in managing the written word, either in expression or attempted coding. So in fact, the problem is a widespread and critical one.

We have here a most distinguished panel. Dr. Orhtman was with us last night, but was called back about 10:00 o'clock in the evening because he had to be present in Harrisburg this morning to make the proper changes in some state regulations. So, he unfortunately cannot be with us today to make the primo welcoming address. And, we regret it; he is here certainly in spirit. I might also mention briefly before we begin, that the present funding picture for special education doesn't look too encouraging for the next years. We've been in a period of prosperity for some five to seven years. I think that we're going to do with many, many less resources than we have had before, and consequently perhaps some of the members of the panel here will address themselves to the issue of providing adequate services in the face of decreasing budgetary support. In any case, we will begin, but first I want to ask Dr. Goodman to address you on various procedural items and then we'll get going. Libby. . . .

LIBBY GOODMAN: Good morning. You have a program booklet that we've prepared for you at the table in front of you. We had asked each of the participants to prepare a paper; these vary but typically they're twenty pages, so we prepared a two-page summary of each of those presentations. You might want to glance through it this morning if you have a few moments. It will help to orient you as to what is being said and of course you can take it with you. There is also a list of participants--their names and addresses. If you particularly want to get more information from someone, you'll be able to contact them. The way we're going to run things this morning is that each of the presenters is going to have about twenty minutes and then we're going to open it up to questions from the floor. We don't want you to have to sit there for three hours until you have an opportunity to ask a question--so it will be a presentation, some questions, presentation, questions, etc. We are going to have to watch the clock very carefully, we probably will not be able to take all the questions that you have but this afternoon all the panelists will stay for an extra hour and you can come up and talk with them individually if you would like to. I'm afraid if we started telling you about the accomplishments of all the people we have up here we really wouldn't have time for anything else. So, we are going to dispense with that this morning and we're just going to go right into our presentations. With that I think we'll turn it over to Dr. Mann.

LESTER MANN: This morning we'll begin with Dr. Lee Wiederholt, who is one of the sponsors of this conference and who worked together with Dr. Goodman to prepare many of the agenda items. Lee will talk about "Adolescents with Learning Disabilities," and from his own experiences working with LTI, the Leadership Training Institute of Arizona, will present the problem in perspective. Lee. . . .

LEE WIEDERHOLT: There is something grossly unfair about being the first speaker on a topic such as this--particularly since I've only been first once before in my entire life and that was when I was made the smartest one in the dumb row in spelling in the third grade. But somehow or another, I got to be first and I guess it's because I'm supposed to be talking about perspective. Why did we come to this meeting, why are we here, what is the purpose of it, and what are some of the issues involved in servicing secondary pupils? It was very difficult for me this morning to arrange what I was going to say in the twenty minutes allotted, because many of the things I was going to say were incorporated in some of the papers of the other people and I didn't want to encroach upon their vantage point; but, I would like to talk about several things.

One of the questions that came up last night at our meeting was what constitutes a secondary LD student? What does constitute a secondary LD student? Dr. Hammill specifically, will be addressing the problem of identification; but I would like to talk about it from an historical vantage point. I'd like to look at it in terms of why we are here in learning disabilities today. We were somewhat concerned in the last few years about the number of people who were saying that learning disabilities was a new field. A new field without any history, without any background, without any sort of past development, or interest by the public. So, we started to investigate where we did come from, and we traced it back many, many decades and traced it back to the beginning and a man called Franz Joseph Gall. In the early 1800's he was talking about a population, a group of people, who had suffered as adults from some sort of brain injury, and as a result had lost their abilities either in spoken language, written language, or what have you. For example, Napoleon referred one of his patients to Gall and the problem was that the person had lost his ability to articulate or to speak as to what was wrong with him, but when shown the chair, for example, he could sit in it, but when you asked that individual what it was, he would say--table--he would just blurt something out. Then he would point to his head as if that was where the problem was coming from and that was why he could not articulate exactly what the object was that you were asking him to talk about; but he did know the use of it. He did understand how to use the objects in his environment. But at any rate, a lot of people came along and they also started studying people who had experienced brain damage, and who had lost an ability.

There are cases of people, for example, who had been able to read and had suffered a mild stroke or a severe stroke and the next morning could not read what they themselves had read the night before. But, if someone read it to them they could understand what was said and repeat it orally. So, there are cases of people who had specific dysfunctions in written and spoken language within our history. They were called brain-damaged adults; of course, they were not called adults with learning disabilities or what have you. Then around the forties and fifties, a group of educators and psychologists got into the act and they said that there are a lot of children who demonstrate the same behaviors as these adults who have experienced some sort of brain dysfunction. And these children, we think, had minimal cerebral dysfunction. And they started planning programs for them. We had people like Grace Fernald. We had people like Sam Kirk. We had Gillingham, we had Stillman, we had Cruickshank, we had Myklebust. We had all these people planning programs to teach people with minimal cerebral dysfunctions, particularly children.

That went along fine until Sam Kirk got up in front of a group in 1963, and it happened to be a group of parents, and he said, "recently I've been servicing this population we call brain-damaged and I prefer the term--learning disabled." That night, the parents organized themselves as an Association for Children with Learning Disabilities; they lobbied for money, and programs were set up in the schools. Now when I got to the school an interesting thing happened. Because we had a lot of failures in the schools, we had a lot of kids who were in fact underachieving; they were in the popular sense of the word learning disabled. Underachievers--kids who were not achieving at the rate that you would expect. It also became a very popular phenomenon; for an example, there's a movie, it was a play before, "Forty Karats," where a young man is dating an older woman and he's being very, very honest with her and he says, "what I would like more than anything, is to marry, buy a house in the suburbs, have three children, a white picket fence, and one of the children will have learning disabilities." Essentially, we caught on with the public in such a way that it was phenomenal. I've recently been talking with a group of parents and I'm kind of convinced that the parents and the schools are using the term learning disability which means, to me and I think to many of us, less than three percent of the population who do have some kind of neurological dysfunction. We suspect it very, very strongly. But, I suspect that many of the people are using it as an out. The old "Label the Kid" game. Let's not look at ourselves, let's not look at our own behavior, let's not look at our programming, let's not look at my reaction to my own children in the cause of their underachievement, let's not look at us, let's look at the kid and zap a label on him. And we have inadvertently encouraged this. It's like in the case of the mentally retarded, where for years we told regular ed--give us your tired, your poor, your hungry, your yearning to be free; we'll put a label on them and put them in a self-contained classroom and you won't see them again. Now the courts took us to task on it and said that we are essentially taking too many kids, and they are not retarded. They fall within the normal ranges of intelligence. And so they said, "you can no longer do this." Well, I think in learning disabilities we're using the term "learning disabilities" as an administrative fiat or cop-out for facing some of the issues in the schools. That is by way of an historical outlook on the field and as I said, Dr. Hammill will be talking specifically on the definition and incidence, so I don't want to get into that.

One of the other things we discussed last night is what is the technology of secondary LD programming? I think you have to look at this from two vantage points. The first is, I think we have to specify the objectives first. What are the objectives of secondary programming for the adolescent with learning disabilities? And, we will define that hopefully later on, at least in more depth than I went into. What are the objectives of the programs we set up? I've been very, very fortunate in the last few years to have done a lot of traveling. And I have visited a lot of programs that have been set up for the adolescent with learning disabilities. Dr. Goodman, who surveyed many of the same programs, will tell you that it's very difficult to get information from them. This is because they are just learning the technology, learning how to set up programs, and they don't want to spend a lot of time answering mail or writing about what they're doing because they're not sure it's going to work. But, I noticed that each of the programs seemed to be geared towards three major areas. The first is consultation. That is looking at the secondary regular programming, looking at the teachers and saying, "you have children in your classroom who need help and we will provide you with expertise." It's very interesting. One case I know of is a program that has been in operation for about four years--Project Echo, in Texas. Essentially what they did is they went into the regular schools and they took four content area teachers. They took one in science, they took one in math, they took one in social studies and one in another content area. They were identified and told--for two years you are going to be resource teachers and you're going to serve the learning disabled adolescent who is 15 years old. And so these teachers got all of the children from the regular classrooms and I think they were getting about 25 percent. Well of course you can't fund 25, you can't even label 25 percent of your 15 year olds as learning disabled; but what they did is identify three percent of those 25 percent for the term learning disabled to get financial reimbursement. And then these teachers sat down and said, "okay what are the problems of these kids?" Well, of course the problems varied. The population was very heterogeneous. But one thing continued to come out, and that was if they couldn't read, it was of no surprise to any of us. So, they took the same content that the teachers were teaching in the regular classroom and modified it so that the kids could get the information without having to learn to read or without having to read it. In other words, instead of looking at the reading and writing road for instruction, they were looking at methods of presentation that were auditory, and the type of responses that the child could make instead of writing answers to questions, or essays. They were simply to verbally respond to questions that a teacher asked. They also developed kits; they called them mini-modules and they gave them to the regular classroom teacher. What they were saying in this program was, you have a lot of kids who are not getting your instruction because they can't read, not because they don't understand. Well, there are a lot of kids in the secondary schools who are not getting the instruction, not because they do not understand or cannot learn the content, but simply because their reading level is so low that they can't comprehend the text that they have in the regular classroom. We had originally gone in and expected the regular classroom teacher to individualize instruction for the handicapped children that we were "going to mainstream." We suddenly found out that we couldn't do this when the teacher said, "but I see 120 students a day, how am I going to individualize for your four?" And that's a very, very legitimate reason for saying that because of the burdens and the responsibilities they have, we cannot expect them to individualize for all children; but we can expect them to look at their curriculum, and their content, and to modify it at least in two ways for every presentation they make in class. Many times you'll walk into a classroom and there will be a lecture and the students' are told to open their book, read pages so and so, and so and so, and answer the questions at the end of the chapter. And who drops out at the end of the lecture? If the lecture's boring most of them have dropped out. If it's a pretty good lecture, then they'll stay in but really cannot perform. So, when we talk about what do we do in consultation with the regular classroom teacher, it's pretty much providing some sort of input or practice in the looking at the content and the manipulation of it for those children in the classroom who cannot read. Also, we found when we went into the regular classroom that many of the regular classroom teachers at the secondary level have not been exposed to techniques in special education, learning disabilities and management. And here I'm talking about grouping techniques and the management of groups. I'm talking about behavior management. I'm talking about contracting. I'm talking about individualization, and techniques for individualization, and techniques for individualization and management in a regular classroom or with large groups of children. And so we have been working with the regular classroom teachers in Project Echo in that respect. You're also going to have children who need special instruction because they simply cannot cope with the day to day life demands. And so we need to talk around the country about functional skills in the secondary program, as well as talking about dealing with a child in an individualized manner in a resource program or if you will, a self-contained program or whatever it might be. We are beginning to look at functional skills, life skills; we are beginning to look at those things that the student will need to survive in society later on. They are identifying the functional skills and they are providing scope and sequence for functional skills in some cases. And they are beginning to find out where the pupil, the adolescent, is in relationship to what they want him to know and then provide individualized programs for the child in that area. Another way, or the third function, or the third focus or objective, of secondary programming that I see is career education. It's very, very difficult to get parents, in many cases, to consider alternative types of careers rather than college careers for their students. And I think in learning disabilities we have led many parents to believe that many of our students will go on successfully to college and graduate. One of the things you usually hear about a speech by a learning disability expert, is that they usually start out with something like Albert Einstein had a learning disability. Well, maybe Albert Einstein did, but I think he was probably gifted rather than learning disabled. And they talk about Winston Churchill. Well, maybe Winston Churchill was learning disabled. And they talk about a neurosurgeon in this country who reads at the fourth-grade level. Well, that's all very nice, except that you build up the expectations of many people--the regular classroom teacher, the parents, the resource teacher, or the special ed teacher, to think that most of the kids who have learning disabilities are Albert Einsteins, Winston Churchills, and neurosurgeons. And it's unfortunate because 50 percent of the population have IQs of 100 or less. Now, most of our kids have IQs around 100, 120, maybe lower to 70, no 70-90, and what have you, and they aren't really going on to college, nor, if you talk to them, are they particularly interested in many cases of going on to college. Their parents are interested, but the student himself is not interested. But, what has been permeating education for some time from the federal level, state level, and on down to the local level, is to talk about and focus upon career education. It hasn't reached the zenith and I don't think that it will within the next few years, but it is becoming more and more crucial to focus in upon career education; it's happening around the country particularly for the adolescent, and particularly those with learning disabilities. What I found to be kind of interesting is that when they talk about mainstreaming with the adolescent, everyone talks about how it is good for the student to be integrated with his peers, his age-mates; well, it's probably not good for the peer to be integrated with his age-mates in trigonometry, if that's not what he's interested in. It's probably harmful to the self concept. But what they're saying is it's probably helpful for us in special education and in learning disabilities to look at mainstreaming our kids into voc and career type programs. We should look at clerical programs, and voc programs, as part of a mainstreaming package for our kids. Now in many cases around the country, you have to have a certain achievement level to get into a career or vocational program. But, there was recent legislation, I believe, that makes ten percent of the programs geered toward career and voc reserved for the handicapped. So, I think if you approach the people in career and vocational education and requested to integrate and support students within those programs who have learning disabilities you might find some very good alternatives. I talked about specifying the objectives. We have the objective of teaching functional skills and career education. There's another part that we have to look at and that deals with--what is the technology of secondary programming. When you have your objectives you can start to look at the programs that are currently in existence and to match them with your objectives. If you go to the elementary level for example, what we had done in the past in learning disabilities is we have looked at things like language. And we say, okay how can we teach language, so we even go back to the linguistic format or a cycling linguistic format or you can go back to some Myklebust work with the aphasic or deaf children or you can go to Skinner and look at the programs that have been generated based on his theoretical vantage point. So, we have alternatives for teaching language. We have alternatives for teaching reading. And if you're looking for a package or a program to service the adolescent with learning disabilities, we are kind of, I believe, missing the boat; because what we're talking about is an individualized program. We are talking about an individualized program for each kid. And if you're going to serve 20 percent of the population you're not going to be able to individualize. But if you serve three percent, and a resource or a special ed teacher at the secondary level serving the LD student has ten to fifteen students who are integrated in other programs, they can go a far piece for individualizing for each of those kids in any of the areas we've discussed so far. There is not a package, there is not a test, there will not be a package, there will not be a test, because what we are looking for are programs that we can match and modify to individual kids with individual and unique differences and needs. Now I guess I'm supposed to stop except I want to say one other thing that came up on philosophy. What is the philosophy of secondary ed? I don't know, but I know what I operate under, and that's to produce happy, healthy, productive citizens. Now if someone could just define for me what happy, healthy, productive and citizen is, I'd be most appreciative. But, I think that's our goal in secondary ed--at least it's mine.

LESTER MANN: Well, we'll open the floor for about five minutes worth of questions. Do we have questions from the floor? Or issues you want to raise briefly?

QUESTION: How do you alternate parent's objectives or feelings about their children? They want them geered towards college. Sometimes you say that the student may not want to go but the parents are eager to send their child through college and they have to change their minds or have them become more realistic about their child, how do you go about doing that?

LEE WIEDERHOLT: When I look at assessment at the secondary level, I look at prognosis. I think its time we have to start making some judgment about the potential of the student in relationship to certain careers and rational potential. So, when I talk about it, I think in terms of gathering objective data, the achievement level, the intelligence quotient, and I think in terms of looking at several variables and having that objective data ready. Then I talk about another part of what you do with a child in the assessment. We essentially go into an interview format, we ask the kid, what do you want? What are your interests, what are your goals? And there are tests; there are informal techniques for assessing an individual student's interests, desires, achievement levels, and what have you. And you start looking at those variables. When you have this data, sit down with the parents and say, "okay this is what we have found with objective measures; here's the child's past academic and scholastic record in achievement; here's what he wants to do; what do you think we ought to do now?" And sometimes you are going to have to probably get the student in to sit down with the parents and serve as a mediator to modify the parent's approach to the goals that they might have in mind for their child. One of the things that you have to realize is that even with using these approaches many parents simply will not go along. I usually approach life looking for 60-70 percent success. If I'm up to that much, I feel that I'm doing real well. Some parents simply will not modify their approach and they will demand things that are unrealistic for the child. The only thing you can do is talk to them, have them talk with the child, have the child talk with them, show them objective data--if you still can't change their opinion, they're there.

It's been kind of interesting. I have worked with this program and we have set it up for three years in one junior high school; now we're replicating it in five districts throughout Texas. And, what we're doing is evaluating the success of the replication. We're seeing if it in fact worked in this one school district, will it work in other school districts? Texas does not want the program extended until its efficacy has been demonstrated. But, essentially it's just a modification of the given curriculum within the regular classroom. And I would go back to say that it's very interesting.

We took objectives for those content areas at the secondary level, and the teachers reacted beautifully when they saw the materials. It happened to me when I was running resource programs at the elementary level; it may not have even been the objective for that lesson, for that week, for that day, or whatever. The materials looked interesting. All my kids should have those. We weren't getting our point across, the point which is essentially using two ways to get your objectives across. You could use the materials that are made commercially available, but they won't for a year or two. But in the interim, what I think you can do is go in and find out the objectives of the teacher. What are your objectives for this lesson today? How many students do you think will get those objectives by dividing the class and providing alternative means? If we give them the curriculum packets, they modify their objectives to what we give them and these are not total packages, they are not total packages at all. So, I would not recommend using them right off the bat until you get the teachers to think in a different way.

LESTER MANN: One final question.

QUESTION: We feel that we got caught in a dichotomy between trying to keep the student up with the regular subjects, modifying the way in which it was presented, and mainstreaming him and then working on basic skills. There wasn't time to do both, and if you did one the other one suffered. The kids felt accepted and maybe got good grades and were in the mainstream, but when they graduated their basic skills had really risen very little. And if we go to the other direction, then we pull them out of the mainstreaming--it seems to be a dichotomy, what do you think? How do you resolve that?

LEE WIEDERHOLT: Keep the kid in school double every day. It's very difficult to resolve. You simply have to look at what I've seen being done and what I've worked on. It means looking at every individual child and asking yourself what curriculum programs can he benefit from in the regular classroom and what is he interested in, and what does he need? Then simply set up priorities, knowing that you cannot meet all your objectives to that individual student, or he cannot, but that you do have priorities and that some are going to suffer. Possibly some summer institutes, and what have you, can be provided to bring him up to level, but there is no simple answer. You are not going to be able to meet all of the objectives for every child. You simply have to set up priorities.

LESTER MANN: Thank you very, very much Lee. When we convened yesterday evening and Dr. Wiederholt projected approximately ten years for us to get a comprehensive handle on learning disabilities, somebody asked him--why that long? He said, I'm busy. So, I think that's probably true. He's a very, very busy man and a very productive one. And for those of you who haven't read Dr. Wiederholt's History of Learning Disabilities, I recommend it highly. Perhaps the biggest problem, at least one of the biggest problems of learning disabilities is--who in fact is the LD child? Because among the children referred, or the youth referred as being LD we have emotional problems, we have social problems, we have slow learners, we have neurologically impaired. We have simply products of bad teaching or bad home management. Is there a specific LD secondary pupil? To this question, Dr. Hammill, Don Hammill, addresses himself, and we'll proceed here. Don . . . .

DONALD HAMMILL: Define happy, healthy, and productive. I'd settle for someone just defining learning disabilities for me. There are those of course who would say it's not important that we define this population; there are those who say--well, just because a child doesn't read and just because he's disadvantaged and all those kinds of things, that's a learning disability isn't it? Let me tell you, such loose and fuzzy thinking is going to drive us all to the wall in the next five years. By this I mean, if we apply the definitions that we have available loosely, we will be defining as handicapped 40, 50 percent of the population and we're mandated then to provide programs out of the handicaps money for children who are absolutely perfectly normal. State legislatures will not sit for it and state legislatures which have told us to set up programs for LD and not given guidelines for what is LD and are funding on the basis of how many kids can you define as LD, have put a bounty on the head of nonachieving children. So you see school district after school district defining and labeling more and more and more of its kids as LD, handicapped, and then going to the state to get this pile of bounty money. It's breaking the states. And in many places the reaction has set in against truly learning disabled youngsters. So, our attempt to provide services under the LD label for this great mass which I refer to as the barbarian nonlearning hoard, is only going to result in the loss of services for which parents have fought so hard to get. Now, time is running out, we eventually have to cut bait or go fishing in learning disabilities. Essentially you have got to define who these youngsters are that we intend to provide programs for. Because if we can't define who they are, how can we provide programs? It becomes ludicrous! The children that I'm talking about are not those children for whom you say "just find where he is on the entry system, and start teaching him at that point." If these kids could learn that way, we would have no problem. It's the fact that these kids don't learn that way that makes them LD. It is indeed ironic that we find ourselves at a conference like this discussing what is secondary learning disabilities, since the whole field is based on the study of secondary youngsters and adults. Hinshelwood, Goldstein, Orton, Gall, Head, all the progenitors of the learning disabilities movement, studied adults almost exclusively. But, when Sam Kirk, in 1963, gave birth to learning disabilities out of his brow, what they decided to do of course was to put the chips in programming for the elementary age child. Great consternation to the parents who happen to have older children. The whole definition says children, that tells you what a small group these parents of secondary-aged children were. But, boy they've had their vengeance. These children grow older, and eventually an elementary-aged child becomes a secondary-aged child and my friends, if any of you are secondary administrators let me tell you what to get ready for. The parents of LD, whatever they are, are organized. They are organized, they are pushing, they expect services for their children whether we can define what learning disabilities is or not, and when their children get older in great numbers we're going to have to provide those programs. These parents will not be pushed one bit. They're really kind of tired of being pushed, because for years we've told them when their kids get older we'll have the programs for them. Now, having by way of introduction got right down to the topic, what is the learning disabled child at the secondary level? A youngster. See, I'm already conditioned. Well it's very easy. The U. S. Office has told us those are students with special learning disabilities if they exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual, handicaps, brain injury, minimal brain dysfunctions, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps or to mental retardation, emotional disturbance, or environmental disadvantage. That's not a definition. That's a monologue. I mean, that is a monologue. Of course, that definition was never intended to be operational. The definition's primary purpose is so that public schools and universities can raid the federal treasury without stepping on the fields of mental retardation and vision's toes. Be that as it may, we in learning disabilities have no trouble in defining these kids, whether you're a Myklebust person, whether you're a linguistically oriented person, whether you're a perceptual trainer, or what have you, or whether you're someone like me, we all agree, that's the definition. That's what he is. There is no problem in defining the youngster, the problem is in operationalizing the definition. No matter whether you're Cruickshank, Myklebust, the U. S. Office, all these definitions have three basic components that an LD child must satisfy administratively if you're going to provide services for him. First, he must be disparate. Second, he must have a disorder in the psychological processes. And third, he must not be something. The problem becomes, and maybe it's its greatest virtue but I don't think so, that definition and those three phrases, key phrases, are actually professional, projective devices. You may read into them whatever you care to, you can define disparity from CA, from middle age; from intra-individual disparity you can define psychological processes to mean that circuitry is bad, or they haven't mastered the sequence process of arithmetic, the process of reading, or you can say they have what I call fuzzy psychological ideas and concepts, like they have memory problems, closure problems, or things like that. The exclusion clause doesn't exclude anybody, really. But I'll get to that in a moment. So, there is no problem in defining the child, because you can define, you can operationalize those clauses any way you want. However, and I've got to say this, in the old days that Dr. Wiederholt was talking about, definition and operationalization was not a problem, because the progenitors dealt with more or less clear-cut cases. And they dealt with them in clinics, and they dealt with them in private operations, and they did not have to satisfy psychometric criteria. If Orton wanted to work with kids, he just picked the ones he wanted to work with. And you say, well, how do you pick them as LD's? Well, I've worked with these kinds of kids all my life, and this satisfies my clinical judgment of the kind of youngster that has these kinds of problems. It is only with the advent of the learning disabilities in the public schools that we got into the business of paper defining kids as LD and having to satisfy various kinds of guidelines. Now we have done this in the schools by doing one of three things; we have three basic approaches that are being used around the country to define LD's. First is the strict constitutionalist approach. These are the purists in LD. To them, a child with a reading problem who's LD is one who's 14 years of age, has been in school, has been through remedial reading, has been through all the support services that are available, and still does not read at a functional level. These are youngsters who are clearly, clearly, observably language disordered. Disparity, meaning they can read but not talk, or they can talk but not read. The process disorder is a neurological defect; they are clearly not retarded or deaf or other. Those people are mostly the old-timers in LD who have come in from deaf education, or who laid down the field in the early days. With the popularization of learning disabilities, however, the behaviorists have gotten into the act. You know they're the people who say, LD is, as LD does. They're the same people who ten years ago said, mental retardation is as mental retardation does, and ended up having everybody with an IQ of 90 or below classified as mentally retarded. Now, these people say, a child with learning disabilities is a child who does not read too good, doesn't cipher too good, doesn't write too good, and doesn't talk too good and we're not really interested in the background of it. This is the definition that many of us fear will lead us to ruin. Because it cannot separate the disadvantaged from the LD. It cannot separate the dull-normal from the LD and if it has its way, will end up with us classifying 60 to 70 percent of Philadelphia's kids as LD when they are merely normal, at least normal learners. A third approach, which I'm not sure how far will go, says that I'm scared to death, I'm scared to death of defining every child who doesn't read as an LD. Therefore, I'm going to come up with something arbitrary that will allow me to cut that mass of referrals down to three percent. So, they end up saying well, an LD is a kid that has an IQ above 85 and flunks the ITPA, or if he gets a little older and the ITPA didn't work he funks the Detroit, and the Bender too. So, now LD becomes a youngster who doesn't read and flunks the Bender because that's how they satisfy the process clause. The fact that the Bender and the ITPA are irrelevant to reading and arithmetic is of secondary importance. The only thing that's important is that it cuts it down to three percent. That may or may not be a way to go. My point is in all of this, that those are the three ways the definition has been operationalized in the schools; I don't think any of the ways are satisfactory. The important thing though when you start to program for secondary kids under the LD label, is that you have some clear idea of who you want to serve. Of what kinds of kids? I suggest then you go out, I think this is the only thing we can do at this point, you diagnose them clinically, you diagnose them on the basis of your clinical judgment and then see that they pass the state criteria. I think that is about the only way we have to proceed right now. Incidence, incidence depends on how you operationalize. If you operationalize on a strict constructionalist's point of view you could not possibly find more than two to three percent. If you are a liberal interpreter of the definition, there is no way you could not find 60 to 70 percent of the urban area kids as LD. Do what you will, but know what you are doing when you operationalize those definitions. Incidentally, there is another way to proceed. So there is hope for the future, if we were to operationalize that definition, I mean really operationalize it to pick a three percent group of youngsters in elementary school, then follow them through high school to see what their characteristics are in fact, is the only way I can think of resolving the issue of what a secondary LD youngster looks like. Now, I think I'm open for questions.

QUESTION : I think the real problem of definition is we don't have enough research which defines the situational variables, which really dynamically change the child in the elementary and secondary level. We'll need in terms of definition, to get under way some long-term research which we will have to quantify perhaps to interpret the original definition.

DONALD HAMMILL: Yes, but I'm not so interested in situational variables. See, there's the difference. I think situational variables are extremely important when you're talking about this great mass of kids for reasons we don't even understand, having problems and not hacking it in school. If you want to talk about what I think an LD youngster is, I think the problem is in him. I think the problem's in his wiring.

LESTER MANN: As you can tell there is an evangelist somewhere in Dr. Hammill's background, and I think that Don has helped to clarify a number of these issues of definition because in fact they are very critical to the field. In this county at least, the referrals for secondary LD really consist of the great unwashed hoard he's talking about, of youngsters who simply can't cut it in school for whatever reason. And the school directors, and the school superintendents are no more interested in our definitions than they are in the man in the moon. They're concerned with getting a problem off their hands. So, the definition is very critical for the future if we are to have a manageable field. In addition to the definition of learning disabled children, however, we also have a question as to what sort of psycho-social qualities we will find in them. I purposely have here this morning, Donald D. Deshler who will discuss psycho-social characteristics of the learning disabled adolescents.

DONALD D. DESHLER: Thank you. I think when we're talking about characteristics and we consider the various issues involved in that very knotty field, perhaps we should stand back a little bit and try to put the problem of characteristics into perspective. If there is something that seems to characterize almost every textbook or article that is popularly written about learning disabilities it is some section or chapter on characteristics. In a way, this has been a two-edged sword. The one side of the sword is the fact that we have hopefully, through a discussion of characteristics, understood some of the unique characteristics of a learner who is having difficulties in an academic situation. But, on the other side, is the fact that we have taken many of the labels and terms that have been commonly assigned to characteristics and treated them as facts; we've generalized them from one age group to another. And pretty soon we start to put some rather large stones around our neck. We have a small portion of the population who is hyperactive and pretty soon a very high association exists between those who are learning disabled and those who are hyperactive. I always have fun with the classes in which I teach, I ask them "when I throw out the name learning disabilities what first comes to your mind?" And about 80 to 90 percent of the first association is hyperactivity. And this we certainly know is not the case; that 80 to 90 percent of all the youngsters are not hyperactive. We've seen, I think, a very careless use of terms and terminology when we're talking about characteristics. When we speak about adolescent populations, I think it is extremely important that we stand back and say what is different with age. What occurs in development? What are some of the changes that take place as one goes from the elementary years to the secondary school? We should not generalize. We must realize that we have extremely little data when it comes to describing characteristics of the secondary population. When we over-generalize with the very partial profile that we have of youngsters at the secondary level, we tend to get an askewed rather than an accurate profile of what these youngsters really are. And every time, as we treat our hunches as facts, our hunches tend to disappear and the facts tend to present themselves time and time again. They tend to appear in the literature and pretty soon we have a set syndrome that tends to define all youngsters who have the learning disabled label. So, I think it would behoove us all, when we're talking about characteristics, to take into account the difference in age from an elementary population that we've been concentrating our attention on for so long; and secondly, not to call things that were hunches and we have from partial insights and treat them as facts. Some question the study of characteristics. Why even take a look at characteristics? Let's just take the youngster, find where he's falling down in school, and start to teach at that point. I believe that that remediation, however, is soundly based on a good understanding of the learner. I recall one point in my career when I thought we could look at the learner in a vacuum and try to understand exactly how he relates to a learning task. We must stand back and look at not only the learner, but also the curriculum demands that the learner finds himself confronted with. As the curriculum demands change, as the curriculum goals and objectives change, the characteristics that tend to define the learning behavior of the learning disabled adolescent will change. If we deviate from our common goal of a hundred percent literacy in this country, we might find a change in the characteristics of the youngsters we're dealing with. So often we have looked again at the youngster in isolation without attending to the demands of the curriculum, the demands of the society, and the employment demands that he is facing. If there is one conclusion that I came upon as I reviewed literature and have played around with characteristics of adolescent learners, it has been that we are a long way from identifying a common variance or set of common variables that define the characteristics of these youngsters. However, we might find in part, some common characteristics in the secondary characteristics; and what I have in mind when I use the term secondary characteristics are those that result from years of repeated failure, lowered self concept, social immaturity, anxiety, poor self conception, etc. When we look at success in life and adjustment in an employment situation, and in a social situation, it's perhaps a mastery of skills in these areas that will make the difference and not necessarily the ability to discriminate a short e from a long e. And so, part of our common variance might be found in some characteristics outside of the narrowly defined group of characteristics that we centered our attention on in younger age groups. The question was raised last night--is there something different about the remediation that we do with secondary youngsters? Is there something that might cause a change in our thinking, a change in our direction? Perhaps we might find a change in direction by looking at the secondary characteristics. Maybe the concentration, in part, with some of our remedial efforts should be upon improving self concepts, in handling the anxiety that results from repeated failure, rather than a total emphasis and concentration on academic failure. Perhaps we might also take some implications from this for teacher training. Should the teachers who are trained in our universities and go out to man our disability programs at a secondary level be only trained to handle academic difficulties? Or should not they also be trained to handle the problems that young people confront in social adjustment? When we look to some of the needs relative to understanding characteristics better, as in so many areas in learning disabilities, the final answer often comes back, well, we need some more research. Yes, we do, although we can't wait for research to give us the definitive answers before we start training kids, and providing services to kids. If, however, we can divert some of our energies and efforts to research, I would suggest some of these questions be considered as high priority: one, there is a very distinct need to differentiate the learning disabled youngster from the culturally disadvantaged, or the mentally retarded youngster at the secondary level. If there are differences in characteristics, therefore, there should probably be some differences in programming. If there are not differences in characteristics perhaps the distinctions we've made in programming are irrelevant. I'm from Kansas City, and it's interesting to note that in one of the larger school districts in the Kansas City area, the concept has been to integrate into learning centers and resource rooms mentally retarded and learning disabled youngsters with emotionally disturbed youngsters under the assumption that there are not differences at the secondary level. The shift in policy has raised some rather interesting questions. Teachers are starting to ask the question, are we not short-changing both groups of youngsters--the mentally retarded and the learning disabled, by putting them all into one service and providing equal services and services of the same nature for all kids? And I think it comes back to the point that Dr. Wiederholt is making on individualizing, that there are some distinct differences. Our understanding of these differences is rather primitive at this point, and our need to more clearly understand them is evident. A second need in our research efforts is the way in which we conduct research on characteristics. I think the literature is flooded with evidence of the learning disabled population being different from nonlearning disabled or normal populations. This is quite obvious. We can usually tell that without giving a test or taking a measure. The point is, how can we differentiate various handicapping conditions one from another, so as to more carefully program and provide for their individual needs? (Not the learning disabled from the normal population.) When we are considering some of the unique characteristics that might describe the adolescent population, I have a very strong feeling that we should look not only to resources within the field of special education outside of learning disabilities, I feel we should also look to regular education. We should also look to other special areas within the educational arena. There are many answers that already exist perhaps in some areas of some other professions that could feed into some of the unique problems that we try to solve alone as special educators. Particularly when we were talking about problems of damaged self concepts, emotional problems, etc., that result over years of repeated failure, let us not try to solve all of these by ourselves and replow ground that has already been plowed and cultivated by some other disciplines. There are two final points that I would like to make with respect to research. In terms of trying to better understand unique characteristics of this population, I feel our research efforts could best be spent by looking at the hardcore group of youngsters, the ones with the wiring problems in Dr. Hammill's terms, rather than the rather broad population that is evidencing problems because of curriculum mismatch or poor teaching. If we understand what is going on in the extremes, and the hardcore difficult cases, this is where our answers are going to reap the best benefits. Finally, with respect to the problems that we seem to be finding in secondary characteristics of motivation, emotionality, etc., there is a need for us to bring to bear the efforts of various disciplines to develop some framework, some motivation that can better explain and perhaps give us some insights into treating youngsters with motivational problems that seem to be quite unique at the secondary level from those that exist from the elementary level. Last night at our preliminary session this very question was raised, what are some of the unique factors involved in motivation at the secondary level? A study by Banks and Finnleyson conducted in England during the past couple years, focused in on the motivational aspects of youngsters at the secondary level, and the importance of developing a dynamic framework of theory to explain some of the variables involved.

LESTER MANN: Thank you very, very much. I think we can open the floor for questions directed to any of the previous three participants, but I'll just give you a quick overview of how the conference has been running. First of all, we convened last night to present general issues; today is the formal presentation on the scanning of their papers. Individual papers were all submitted which will be eventually published for the Commonwealth, and they will be available to you at that time. Now tomorrow we're going to meet and argue, so I think that's sort of the general program. But, right now we will take some ten minutes or so for general questions from the floor directed at either Dr. Hammill, Dr. Wiederholt, or Dr. Deshler.

QUESTION: Dr. Hammill, previous to your presentation this morning, I thought I was working with learning disabled youngsters, I guess perhaps I'm not. I feel that in special education we have a responsibility to those students who are having learning problems in either special education programs or regular school programs or whatever. That's where I'm at--so what are we to do?

DON HAMMILL: Well, I felt the same way. I guess the basic issue is the basic issue that's cutting across all areas of special education. One of these days we will have to decide whether or not we're going to provide services for the handicapped kids and youngsters who are out there, who need us, for whom we have very meager funds to expend right now, or whether we're going to turn ourselves into a big support system for elementary and secondary education. I don't know how that's going to be resolved. I simply do not know. But, I'll say this, if we're going to start providing services to normal children, or to typical children then the funding patterns have to change. I'm perfectly willing to do it but I'm not willing to do it with money that has been hard to get from the parents of handicapped children, and then turn it around and spend it on children who are not handicapped, who are simply poorly taught, nonmotivated, something like that. I don't care how we go, but that's just how I feel about it. Our dollars are too few right now and they're getting fewer to cure the ills of the American public school system. That's just how I feel.

LESTER MANN: An interesting point, by the way. At the turn of the century, at least, special education was also responsible in large cities at least for the foreign born, the immigrant populations who couldn't read or write. And in fact, there was no reason as Don says, why we shouldn't take over this charge if in fact they will provide the funds to support it. Any other questions please?

QUESTION: Dr. Wiederholt, my question is going back to the packets that are being planned for the regular classroom teacher. Is this a modification just for the LD child in the classroom or is this a modification for her whole program?

LEE WEIDERHOLT: The question was about those packages that are being developed in Texas and whether or not they're for all the class, part of the class, or for just the LD students. They were for any child who could not learn or any adolescent who's 15 years old who cannot learn the materials through the traditional method that the teacher was using. They were developed, however, for the learning disabled. They developed a technology and if it works with adolescents with learning disabilities it might also work with other students who are having problems. And I think that we could easily provide the technology and support to those groups. But, the real purpose of the materials was for those children who had in fact learning disabilities and identified them on several variables.

QUESTION: We followed the outline that she would teach in her class, but she would give these materials to the children having problems, is that it?

LEE WIEDERHOLT: Yes, except they took four teachers out in specific content areas and developed the packages. Now, we have found, of course I think it's common knowledge, that teachers by in large may teach science in one group but their objectives in the science units and lessons and day-to-day plans are very different from classroom to classroom. So teachers develop and use their own insights into their own desires as to what they want to get across. And it may not be the same as what is being taught in another classroom. There is a lack of standardization, I believe, in many of the classes, in the curriculum, and in the approaches, and in specific content. Does that answer your question?

QUESTION: Contempory events underscore the importance of definition as has been pointed out by the panel. I'd like to bring to your attention the fact that the success of the Association for Retarded Children before the federal court here in Pennsylvania is owing to efforts on the part of interested groups to haul the schools into court to obtain similar decrees with respect to learning disabilities. We are already faced with such a suit in the Philadelphia District. It is important to recognize that in our conferences with the attorneys we have made clear that we're not prepared to enter a consent decree of the same kind as the mentally retarded. But, we're finding these matters of definition very, very difficult to nail down. The attorneys see things as all black, or all white; it's either this or that, is he or isn't he, and it seems very clear to us who are struggling with this, that we're not just engaging in an academic exercise. What we commit ourselves to, whatever it be, whether it be a plan such as has been mentioned, an operationalist's plan that would sweep 50 percent in, or three percent, or whatever, it is really urgent that we consider very carefully what we are doing and commit it to paper and make clear to our staffs and have agreement with our staffs as to where we do stand on what seemed like a comparatively academic dissertation.

ANSWER: Well, I think an important point along these lines is that many of the children of the parents who participated in ACLD would have been diagnosed in early years as being mentally retarded not LD by our standards of normal intelligence. In fact, the average LD child is not referred to special education, he is managed by remedial education or other means of keeping him in the mainstream even though he might be flunking. So, we in fact have had in our own County of Montgomery a great deal of difficulty in obtaining children who meet the criteria by our standards of average mental ability, process difficulties, and mild neurological dysfunction. They are there, but they are being managed by general education, or remedial instruction, or speech. In fact, I would dare say if you took the average child from an ACLD parent, you'd find that the IQ's range well below 90, and in fact they have severe problems and in previous years would not been defined as a learning disability.

QUESTION: I wondered if we could add more about the reason that Kansas City combined the group of ED and LD? Could you tell me why that was done, was it a carefully thought out policy, and what is coming out of that?

DONALD DESHLER: The paper was very well thought out, in the concept of sound it's a learning center in the truest sense of the word. Theoretically, all youngsters are to filter through the learning center. The staffing procedures, however, have been for a teacher who is trained in the mentally retarded to teach the mentally retarded, and one trained to teach the learning disabled is placed in the learning center. And typically, the youngsters who have filtered through the learning center have been those who were there prior to the changing of the name to a learning center. And the programming has not been diversified, particularly in the high schools. Now in the junior highs they have found more success in addressing themselves to the unique needs of the students. But, at the secondary level, it's very difficult to identify unique programs. All of the youngsters are receiving the same curriculum, the same experiences for the most part.

LESTER MANN: Thank you very much. I think we'll take our break now.

BREAK:

LESTER MANN: Our next speaker will address himself to perhaps the entire heart of the learning disability question, and that is the processes. Because in effect, learning disabilities as an entity, if it is an entity, is defined by processes. And the next speaker comes to us with a background of taking a negative stand in respect to processes, particularly in the secondary area. Dr. Ysseldyke . . . .

JAMES YSSELDYKE: I want to just start out by saying, I guess it's inevitable that we're here talking about learning disabilities in the secondary schools. I steal from Pat Gillespie when she said last night, "you know we've been telling parents for a number of years that they've got brain injured children, neurologically impaired children, dyslexic children, and learning disabled children and lo and behold these children have gotten older." So now, I want to take this opportunity to invite you back ten years from now when we'll be talking about the learning disabled adult. And, in about twenty to thirty years we can go into geriatric LD. I think we've got some serious problems in the field of learning disabilities and let me just fill all of you from Pennsylvania in on one thing that I think we're going to have to get our heads together on in an awful big hurry. The reason Dr. Orhtman left, Dr. Mann didn't really make that very clear, is that due process for learning disabled youngsters went through yesterday. Now, I can hardly wait to see attorneys for parents sitting down with attorneys for school boards and arguing whether or not a child demonstrates a learning disability. And, unless we start talking the same languages, as Clark was referring to earlier, we're going to have some very serious problems. Or, we've already got them. I've been asked to address the topic of process remediation with secondary learning disabled youngsters. I can sum up in about one sentence what I'm going to say. I believe that the whole idea of process remediation, or ability remediation, with secondary youngsters is absolutely wrong. Now, let me go from there and say why I feel that way. Special educators have argued, and they've expressed a great deal of diversity regarding a definition of learning disabilities. But, it is a fact that learning disabled children are identified in any definition you want to pick up as demonstrating deficits, deficiencies, disorders, or disabilities in one or more of the psychological processes believed relevant to learning. As a result of an emphasis on identifying process deficits, disabilities, etc., we've begun to program in rather wholesale fashion, at the elementary level anyway, for LD kids. Most remedial efforts have been at the elementary and preschool level and I think that's rightfully so. Most efforts, as I said, have been at the preschool level and those who do advocate process reability at the elementary level, say that's where it ought to remain. In the Hobb's publication on labeling and the futures of children, Cruickshank and his crew, in addressing the idea of remediation for learning disabled youngsters, make the statement that for the child above nine years of age, intervention will need to be thought of as mainly compensatory rather than corrective. Where perceptual problems of discrimination, memory, sequencing, closure, or special orientation still exist, direct remediation is unlikely to be effective, since basic processing ability is by this age as well developed as it ever will be. And that's essentially the theoretical argument, that the processes or abilities mature by ages 9, 11, 12, 14, depending on who you are talking about, and it makes little sense to spend our time trying to remediate process or ability deficits. Now theoretically it doesn't make any sense, and practically it doesn't make any sense, that in order to have a deficit or a disability you've got to have a test to find the deficit or disability. And we don't have tests for secondary kids. The ITPA quits at 10, 10 and a half, Bender quits at 10, the Frostig quits at about 8, so we don't have the devices to use at the secondary level to be able to say that the kid is deficient in visual closure. So, I want to raise a number of issues. We have a number of very serious questions which we must be able to answer before we can consider process remediation with secondary-age kids. First of all, do processes or abilities exist? Well, I believe that processes or abilities exist. What we do is we observe differences in the way in which kids learn, either in complex learning experiments, in a classroom, or whatnot. And if we come along and we say that we observed kids who fail to learn and we can't say he's developmentally retarded, we can't say he's emotionally disturbed, and we can't say he's deprived, or at a disadvantage, or whatnot, then we say the difference must be in the kid because he's not profiting from the instruction with which I'm providing him. Now this has led again to a wholesale effort to identify the processes or abilities that are going haywire in the kid. So we have explained academic failure by saying it's due to cognitive process deficits, perceptual process deficits, psycholinguistic process deficits, deficits in the kid's ability to pay attention to what's going on, etc. Now, we have a lot of "research efforts" designed to identify the processes or abilities that are causing academic failure. And please note that these research efforts are largely the kind in which we compare good and poor readers and look at the descriptors of those kids. We ask, how do we describe a kid with reading difficulties? And we give him a whole bunch of tests to be able to say that he's bad in this, he's bad in this, and he's bad in this, whereas a kid who is reading is good in this, and this, and this. Or, we go in and correlate performance on our Frostigs and our ITPAs and our Benders and everything else with academic performances on these devices. But we goofed. If you've ever had a statistics course, you learn that correlation is not necessarily causation. Yet we say, variable A and variable B are closely related. Therefore, A causes B. Barbara Keogh raised a very interesting point a number of years ago when she said, "we really have not been able to demonstrate that the perceptual psycholinguistic processes, etc., develop as a result of the kids' learning to read." Maybe reading causes perceptual goodness, or whatnot.

Evidence for process deficits is at best incomplete and I would say hypothetical. Lester says it a little stronger. He says, what does not exist, cannot be trained, etc. The second thing, the second basic question we have to deal with is, can those processes and abilities be measured? If they exist, can we measure them? And, kids are seen as demonstrating deficits, or disparities, or disorders, or whatnot, on the basis of their performance on psycho-educational tests. Reliance on deficit scores is at best a haphazard process, as I think is adequately illustrated in a number of nice little research statements. We use, in most cases, norm-referenced tests to identify LD kids. And I just have to bring in a quote from Ausubel, because we say that the kid who deviates from the norm, is LD. Ausubel says, "developed normal norms are valuable because they provide a standard or a frame of reference for evaluating and interpreting the status or current behavior of an individual." They can be misused if the range of variability is overlooked, if expectations for all children are geared to group averages, if substantial parallelism is expected between component rates of growth, if they are unwarrantly applied to individuals who could not be included in the sampling population, and by the way, the sampling population for the ITPA is on normal kids, I just had to throw that in, and if individual guidance is predicated upon normative comparisons alone, to the exclusion of information regarding individual patterning or variability. At the elementary level, we have been unable to reliably, validly, precisely, assess specific processes or abilities. Few tests at the secondary level even exist which would allow us to do so. Yet, we come out with a whole slew of "how to do it" books. Diagnostic prescriptive manuals. Give the kid this test, look at his performance, analyze his profile, and teach him this way depending upon how he performs on the test. Okay, let's leave the issue of whether they can be measured for a minute. Let's assume that they exist and that they can be measured. Now, do processes develop into adolescence? Because you see if you're going to remediate the processes, they've got to develop into adolescence. Growth in different processes or abilities tapers off, dependent upon the particular processes being considered, and the tests which are used to measure them. If you look at tests, like the Raven, The Cattell Culture Fair, The Blind Leaming Aptitude Test, etc., children's abilities peak at about age 11 on those devices; whereas if you're looking at Otis's Concept Mastery Test, etc., that performance continues until as much as 50 years of age. Current research evidence from developmental psychology indicates that processes, and especially intellectual processes, mature on the average of different ages and that there is considerable variability for specific individuals. So, I think we've got some questions regarding whether or not processes actually develop in adolescence. And even if they do, are they used in the same way? Does a secondary kid learn in the same way as an elementary kid? And I think that we have to stick in a very strong No at that point. Because learning disability theorists typically believe that process maturation is a necessary condition for the kid to learn. When we get to the secondary level, we are forgetting a very important factor--and that is the learning history of the individual. And I would submit to you that, except perhaps in infancy, a great part of variance and rates of learning between individuals must be attributed to differences of results of past learning. Observed rates of learning in most situations, we now realize, depend to a major extent upon habits or strategies of selective attending, seeking of information, coding and recoding stimulus information, and rehearsing the manner in which these things are organized. Individual differences in habit systems may indirectly reflect differences in capacities of abilities or processes, but they must also be strongly determined by a variation in motivational systems and in previous opportunities to learn. I think we often forget that the kid has a long history of negative conditioning in educational settings, specifically negative conditioning with visual and verbal stimuli, reading, writing, etc. I also think it generalizes to the classroom teacher who shoves the stuff at him. Yet our remedial efforts do what? We give the kid visual and verbal stimuli and we have a teacher give it to him. So, I think we've got to raise some questions in that regard. Finally, can processes be remediated? If they exist and they develop into adolescence and we can measure them, and they're used in the same way, can they be remediated? I'd have to say, let's look at our track record with elementary kids. We have very little, if any, evidence that remediation of processes as such improves a kid's academic performance. I won't belabor that a whole great deal. Should they be remediated? You know we're talking about process remediation. I don't think so. I think we've got to come up with some alternatives in terms of educational programs for secondary youngsters. As I said, I think we are in a great deal of difficulty in dealing with any conception of process remediation at the secondary level. The programs that we have, have not been demonstrated to have much, if any, validity. And I think that it raises some ethical problems for me when we start "experimenting with kids." I think we do have some procedures that will work with kids, and I don't want to elaborate a great deal on that at this point, except to say, that if we go to the kinds of procedures, if we are worried about remediation of academic skills, then let's deal with skills, and let's deal with them in kind of a task-analytic way. We have a lot of evidence that those kinds of procedures are indeed effective. Simply refer, if you will, to the research of Bijou and Ranier School, some of Baer's stuff, some of Gall's stuff, some of Lester's stuff, etc. And I think we've got some procedures that will work, but let's not kid ourselves and get off into the whole area of process remediation with secondary kids. Thank you . . . . Questions?

QUESTION: I saw a contradiction in the last comment. You're saying that some of the task-analytic approaches are productive, at the same time you said that the negative conditioning, visual and verbal stimuli coming from the medium of the teacher, was what we had to contend with. You're again feeding into that negative conditioning if you use a teacher and present visual and verbal material through a task-analytic approach. I will rephrase the question. It seems to be a question that many of our remedial efforts have been visual and verbal; the kid has been negatively conditioned with visual and verbal stimuli, and so doesn't the whole idea of task-analysis and plugging the kid into verbal stimuli put him in that same kind of situation?

And I think, what we've got to do in that sense, is really question what our objectives are for secondary LD kids, as some of the others have said. Not only question whether these kids ought to be into reading, and math, and everything else, but question what it is we're doing with these kids. And, on the other hand, I'm not sure that remedial efforts need to be with teachers. I think too many of us are looking for kind of a cookbook procedure to use with secondary LD kids. Give me a program that works, something that I can rely on. When we're on the elementary level, we've got our SRA Diagnosis Kits, and we've got Lester's program, and we've got Frostig's program; at least we've got something to deal with. I think to try to look for a program that will work with secondary kids is wrong. But, I'm not sure how we should deal with the idea that the kid does have a long history of negative conditioning in visual and verbal areas and we come back in and try to give him more of the same. Maybe that's not what we ought to be doing. Now I've hedged, but I really don't have any real good answer for that argument.

QUESTION: Would you be a little bit more specific in what you really mean with the statement that the secondary kid doesn't learn in the same way as the elementary kid?

JAMES YSSELDYKE: What I'm saying there is that we forget that in the elementary years we're dealing with a kid who comes kind of fresh into a learning situation, in many cases without the long history of failure in academic settings. I don't know where the evidence is and how elementary kids learn differently than secondary kids, but if you take into account what they enter the situation with, the learning history itself, I think it creates enough differences that if we try to do with secondary kids what we've done with elementary kids, we're going to fall on our face.

QUESTION: I'm inferring then, that you think that these kids might do better in a setting that's different from a traditional school room, the apprentice kind of program, more of a voc-tec, career kind of program. Am I right or not?

JAMES YSSELDYKE: Well, you see, I don't dare say that at this point. As Dr. Mann was saying about alternative programs, pretty soon we're going to have state schools for severely and profoundly gifted kids if we continue that kind of separation. I'm not a secondary educator but I would say that we need to examine the nature of secondary education. The career education's been followed up, vocational education's been followed up, so I won't tell you to put the kid in a career ed program or put him in a vocational ed program because I'm not sure he will be better off. I think we're at the stage where we've got to rethink what it is we're doing with the kids. It's easy to say, but it's harder to operationally come through with some concrete kinds of things. A qualified yes. The alternatives to straight forward academic college preparatory instruction ought to be there.

LESTER MANN: Our next member is Janet Lerner who I'm sure is well known to all of you from her book on disabilities and Janet will talk to us about taxonomy of remediation.

JANET LERNER: I'm going to talk about remediation. I know that many people think of it or define it as a bag of tricks, but for the first time in my life, this week I saw somebody actually operationalize that definition. I had a student come into my office and she wanted some advice on how to begin our graduate program on learning disabilities. And after several questions, I found out that she had received her bachelor's degree last June in elementary education and that she had a job now in Chicago. Well, getting a job in elementary education now-a-days is no mean trick, so I asked her how she did it. She said she used a bag of tricks. Somebody told her that if you have a big shopping bag filled with things, you will impress the principal and the administrator that you really know what you're doing; you're all prepared for the class. She was a very short gal, about four feet, eleven inches and the bag was about five feet tall. So, she was carrying this bag around. For three weeks then, she ran around Chicago taking this big bag when she interviewed for jobs and when she was called for substituting. In about three weeks, there was an opening at one of the schools in Chicago. And the principal said to the secretary, "get that gal with the bag, with the shopping bag." So she got the job and it worked. So, if you want to pass that on to somebody you know looking for a job, go right ahead. Several people have talked about our promise of remediation, particularly at the elementary level where we've promised administrators and parents, and doctors, and other people that once we diagnose a child we will be able to supply the proper remediation and cure the child. The question is, what are these methods of remediation that we have? This year for the first time, I was asked to teach a course called "Remediation of Learning Disabilities," and I had a lot of trouble tackling that course. I found that this was a graduate course and people came into the course full of hope because now at last they were going to become privy to all those secrets that you and I know and I was very frightened because I didn't know what to tell them. And what I have here is the way I solved the problem, and the way I was able to organize it, at least for myself. So, I thought what I ought to do is try to organize or classify or, if you will, develop a taxonomy of remediation that people either say they are doing or suggest that people do. And the figure that I have on the board demonstrates this taxonomy. What I've done is take all remediation and call it the entire universe of remediation and that's the thing way at the left. Then I subdivided remediation into three types of analysis that it seemed to me that people used. Some people approach remediation by analyzing the child. Some people approach remediation by analyzing the content they're going to teach. Some people approach remediation by analyzing the environmental conditions under which children learn. Then each of these types of analysis was again subdivided into three specific categories of remediation. So, I will read them to you and if you want to know more later, you could look at this paper, or write to me and I could send you a diagram. To analyze the child there are three ways that I categorized it: (1) Cognitive processing (2) Sequential stages of development, and (3) Test-related approaches. Then the analysis of the content was subdivided into three categories: (4) Specialized techniques, (5) Skills development, and (6) Materials approach. The analysis of environmental conditions was sub-divided also into three categories. So that would be number (7) Behavioral approaches, (8) Psychotherapeutic, and (9) Pedigogy. I'm going to talk about them again, so let's go to the analysis of the child then briefly. As I said, there were three. Cognitive processing, sequential stages of development, and test-related approaches. By cognitive processing, although I don't think I have to define it because it's been defined about four times today, and it has been pointed out that cognitive processing is for many people the essence of learning disabilities where we do talk about the visual, auditory, haptic, memory, etc., abilities. We compare his strengths and his weaknesses in these abilities and from this information supposedly we are able to develop a remedial plan. Of course, the authorities disagree about what you do with this information because some of the authorities say that what you do with a cognitive processing diagnosis is build up deficit areas; other people say what you do is find a way to teach that utilizes the child's strengths. Still other people are compromisers and suggest a two-pronged approach where you do both at the same time. Now, as has been pointed out several times today, this is the area that has been probably researched and critiqued the most in the area of learning disabilities. Another criticism that I might add to the many that have been presented today, is that it's very difficult to find an area to teach that depends upon only one cognitive process. For example, even though we call it a phonics method or a look-say method, which is supposedly primarily auditory or visual, I think that the child should have contact and be using several of these processing abilities, even though we call it one or the other. Nevertheless, I think the person who calls himself a specialist in the field of learning disability should be familiar with cognitive processing as an area of remediation competence, and should also be aware of the criticism of these approaches. As I go through each of these, you'll find that each of them has value, but each of them also has its criticism, so let me warn you, I'm not going to end up and say this is the approach. The second one that I think analyzes the child is the sequential stages of development approach. And in this approach, we look at developmental stages of a child in the diagnosis, and remediation means going back to that level that the child has not yet successfully accomplished and begin teaching him there. In general, the motor approaches are good examples of this particular approach to learning disabilities. Again, the literature in the past few years has been filled with this approach. Generally, the critics have pointed out that even when we go back and remediate each particular stage and maybe the gross motor stage or the fine motor stage, the child does not improve in reading skills as a result of this type of remediation. Then the next way that looks at the child per se, I've called the test-related approach. And again, this has been referred to several times today. And in this approach, you use a test and you assume the model underlying the test is the model that you're going to use. The prime example is the ITPA. You assume the model underlying the ITPA is the model of learning disabilities you accept, you give the test, and then it's very simple. You remediate that area in which the child did very poorly. It's a teaching to the deficits approach, and to make matters even easier, if you use this approach, it's very neat. A number of publishers have come out with materials that are divided just like the ITPA so you can go into whichever of the 12 areas that you have to teach to. The same is true of the Frostig and the Detroit and many of the others. The criticism of this has been stated many times so I won't go into that. The second general way to analyze remediation is analysis of the content. And this is number four on my list here. The first of these then is specialized techniques. And in this approach you assume that the regular developmental methods used in the classroom are inappropriate and have failed for this child, and therefore, a very different, highly specialized, differentiated, unique approach is needed for this child. Gillingham and Fernald, are examples of this. Often when you look at these approaches very carefully, you find, at least I think, that they are very similar to the developmental approach, which in general means that they require very strict adherence to specific directions. Research is totally lacking to show that one of these approaches is superior. Then the next approach is what I call the skills developmental approach. In this approach, you develop a hierarchy of skills and you find where in this hierarchy the child is, and then you begin and you plug him in, if you will, at that point. The criterion reference testing methods are built upon this philosophy of remediation. This approach doesn't escape criticism either, because we do not know if that particular hierarchy is the best hierarchy for this child to learn. Some of the hierarchy with the published materials have as many as 450 reading skills, for example, that the child must learn. If the child is stuck at skill 27, you have to keep at that until you can go on to skill 28. It may be for this child, you should go to skill 50 and back to 28. A skills approach really doesn't permit you to do that. Then the next approach that focuses on the skills or the content rather, I've called the materials approach. And many people have total dependence in remediation upon a material. And I think when you are asking for material or a program for the adolescent student, you're going to be dependent upon a materials approach. And whatever the builders, the authors, the publishers of the material said to do or said is the sequence, you're going to accept this if you follow a strict materials approach. Then the last one, the last set, is the environmental conditions of learning. With the first of these in this approach, you don't worry about causes, you don't worry about materials, you don't worry about underlying processes; you worry about the environmental conditions surrounding the learning and you're trying to change that in some way. The behavioristic approach which is number seven on that list is one way to do this. And you all know about behavior modification and so I don't think I have to go into that. Let me just read you one quote, however, that I think provides a very good criticism of this approach because this approach again does not escape the critics. And this is from Kenneth Goodman, and it was in an article in a recent issue of Elementary English. "We've got to tell the operant conditioners and the contingency reinforcers that kids can learn like pigeons, but pigeons can't learn like kids. And that learning theories that try to reduce learning to bite-sized pellets that pigeons can swallow are inappropriate and theoretically wrong and ultimately harmful at least to some kids." Let me skip a line here. "We've got to assert that if kids learn to read with these pigeon picking programs, that's a possible tribute to the language learning competence of kids which makes it possible to overcome the absurdities of programs like Distar and BRL and learn to read anyway. Most children can learn in spite of such programs which fragment reading into sequential and measurable irrelevant trivia. But, enough children suffer that I would like to see the signs displayed all over the walls of exhibit areas of I.R.A. and C.E.C. and other conventions which say 'Caution, Instructional Materials displayed here may be injurious to the mental health of your pupils.' And some students have added, 'and the mental health of your teachers." Number eight is the psychotherapeutic approach, and people who use this approach say that we must focus on the feelings of the child, build his ego, and the critics here have said that too much emphasis on this can neglect the skills and result in creating youngsters who have learned to be happy failures. And then the last one is the old-fashioned term, pedagogy. It's number nine, and it refers to the teacher. Study after study has shown that the most important variable element in the learning situation is the teacher. Everybody agrees to this. The only thing that they disagree about is what are the attributes that make a good teacher? And we go into a whole list of things and argue about that. Each of these has value, each of these has short-comings. I think what is needed is a development of a system remediation that takes into account several of these.

QUESTION: Remediation--why do you use that term? Where are we remediating to? What goal--what is the ultimate goal of remediation?

JANET LERNER: Why am I using the term remediation instead of learning? I think remediation is a very controversial term, I agree, and the question has crossed my mind, and I haven't answered it for myself satisfactorily, because I think remediation means reteaching. I've used it because it's a popular term and I think people generally know what it means. This is the first time that anybody's asked me what it is. But, there may be a more appropriate term.

LESTER MANN: All right, thank you very much, we'll move on now. The next member in the program and the final one of this morning session is Dr. Libby

Goodman, who will actually discuss some programs that are extent in the field and give you an overview, and at least show you that something is going on out there. Libby. . . .

LIBBY GOODMAN: In Montgomery County, the Intermediate Unit has been operating elementary programs for four years now. This year we have begun operating secondary level programs. We would have preferred to have waited until next year, but the pressures were such that we had to begin a year early. In preparation for secondary programming for learning disabled students, I started to take a look at what other people were doing across the country. What I'd like to share with you now, are some generalizations about what I found. There are a number of federally funded programs under Title VI and Title III that are involved in developing service delivery models for older LD students. The models vary greatly from one place to another, obviously they can't involve direct services or indirect services. Let me just stop and talk about some of those indirect services first. Indirect services are those such as, itinerants, itinerant teachers, itinerant consultants, materials, and information centers. One of the things I found going on now is not new, it's only new in that it's being applied to secondary LD students. We've had programmed instruction for other kinds of handicaps, we are starting to get it now for the learning disabled. You can send someone a description of your youngster, and they'll send you back a nice little box, booklet, or whatever, that will tell you exactly what to do to remediate his problems. I see a good bit of that going on. Some of these centers are being established to provide help to the teacher particularly, and diagnostic prescriptive types of methods. Some of them even have in their designs, a system whereby a teacher can bring the child to the center. She can make an appointment, bring the child in for a day, they will do an evaluation, a complete diagnostic work-up, and when the teacher leaves in the afternoon, she will have a prescription ready for the child. Now, this may sound very nice and it might be appealing to the children, but it makes me a little uncomfortable. I personally feel that the person who's going to be working with the child in the classroom is the one who should really be doing a good bit of the assessment and diagnosis. I wonder about the validity of bringing a child into a center, handing him over to someone who's going to work with him for the first time for an hour or two and then walking out with a prescription that's really going to do any good. But, this is one of the service delivery models that is being developed in secondary LD. Inservice is very, very important. Inservice, and occasionally preservice, for people who are not yet certified teachers is helping them to develop diagnostic prescriptive competencies in most instances. Inservice is for other personnel within the school, reading teachers, guidance counselors, principals, etc. It includes packaged materials centers, evaluation services, and things of this sort. Direct services, of course, involve classroom operations. By in large, we are getting resource rooms across the country. This is the model that is most popular right now. We are getting self-contained classrooms in some places, but more often than not, if you're having a program established at the secondary level and it involves a classroom operation, the classroom is going to be based on the resource room model. In Montgomery County, we are establishing both kinds, we have resource rooms and we have self-contained units. I'd like to think that the decision as to which one you want to establish is based upon the needs of the youngsters. We feel that it depends upon the severity of the child's disability. We feel that to have a child at the secondary level participate in a resource room, he should have a functional level in math and reading of third or fourth grade. And that if he is well below that level he really cannot maintain himself in the secondary program and perhaps the self-contained classroom would be better. Therefore, I'm saying that the decision is based upon the needs of the youngster, the severity of their problems. I would like to think that this is the way it is. I tend to think that frequently it depends upon what kind of money is available. Along with the resource room, the emphasis is on diagnostic prescriptive teaching, or clinical teaching, whatever you like to call it. It goes hand in hand. You know what that is, you bring the child in, you do an extensive evaluation, determine his strengths, weaknesses, and then you design an individualized instructional program for him.

Frequently, the program at the secondary level is focusing on remediation of deficits. Now, the problem as I see it, is whether the deficit is one of specific skills and abilities such as math, reading, or social relationships, or what has been said many times already this morning--processes. I'd like to give you a couple of examples of programs that emphasize processes. When we were at ACLD recently, we were on the program with a group from New York and they were there to describe their secondary learning disabilities approach and it was very much diagnostic and remedial and involved with process dysfunction assessment and remediation. They brought a youngster in, and using such tests as the Wepman, the Detroit, the ITPA and others, they found out exactly where the child was having problems, and then they directed instruction to that. That is a very typical example. The most glaring example of process training at the secondary level that I have found is a project in, I think it's Texas, called Project Tint. It's called TINT--To Involve New Tones. They bring the adolescent in and they test him primarily with the ITPA and then they provide remediation on a one to one matching basis with his performance on the sub-test of that particular instrument. Therefore, if the youngster is deficient in visual sequential memory, perhaps a 15-year old, he then gets training to do better in visual sequential memory. And this is basically the approach. It's the most glaring one I've seen and to me personally it's appalling. I don't have to reiterate what's been said in terms of process training; all I can say is I can hardly agree with it. And when I see programs of this sort I find it a little upsetting. But deficits that deal with specific skills and ability, well I think they're on much firmer ground. However, at the secondary level I think we have to start thinking about changing the emphasis from deficits to strengths. Realistically the child has been in school for quite a number of years now and we don't have much time left. We have to start thinking about what we're going to do with him or where he's going to be headed after high school and a child just can't get a job based on what he can't do. Perhaps he can get a job based on the strengths that he does have. So, I do see some programs that are shifting their focus from deficits, or problem areas to finding the strengths. There has to be a balance, obviously you don't ignore it completely; there has to be a balance there. Another thing that I found in looking at secondary programs, it's something that has already been discussed somewhat this morning and I'm just going to add to it, is after looking at a number of them I really had no clear idea of what kinds of youngsters we were dealing with. Criteria and procedures for selection, and inclusion of adolescents in these classes is very, very unclear. You would think that that would be the first paragraph. But, you go all the way through the project report, and you come away with very, very little information. Perhaps we're trying to avoid the problem since it's such a difficult one to deal with right now. Also, I came across a number of programs that I can't call programs for the learning disabled specifically; I can't say they're special education, but I suspect that a lot of learning disabled youngsters may be in those programs. For example, what kind of an adolescent ends up in a class called the terminal class for the non-academic? One with cancer--I hope not, but I suspect that some of our LD kids are there. Another one I found was non-academic teenager. What is a non-academic teenager? Or an adolescent non-reader; not to mention dropouts and delinquents? I think that once we do have some criteria, once we do know what kind of youngsters we're looking for, and we can find them, we will have to go into some of these other programs. Leave the youngsters there who do not belong in our LD programs, but find the few who do--the one, two, or three percent, and pull them out of those programs and put them into appropriate instructional systems. One of the most promising approaches that I've found, and the gentleman in the back row came up and talked with me about it during the coffee break, was in the secondary programs that are focusing on bringing about some change in the regular classrooms as well as in special classrooms by involving secondary content area teachers. I think that we realize that outside the realm of special education, very few regular teachers, science, English, perhaps mathematics, or what have you, will acknowledge their responsibility for the instruction of basic skills as well as the subject matter which is specific to their own discipline. Some of the projects went into the regular classrooms and brought about changes there.

They were backing that up with a special class situation or a consultant, an itinerant person if you will, and they were just bringing the regular instructional program into closer approximation to what the learning disabled youngster needed. For instance, in one program math and social studies teachers were urged, and I'll underline urged because they managed to bring around quite a bit of change, maybe they were even coerced, but anyway, they had to abandon the traditional textbook oriented approach and develop multi-media strategies for the presentation of their content matter. They had to structure their classroom instruction in the terms of behavioral objectives. They had to develop multi-sensory teaching aids, etc. And once this was done, and of course the LD kids were getting supplementary reading instruction as well, they started to make the grade in regular class programs in the content areas. I think frequently we have separate but parallel programs and our youngsters only see normal kids in gym and various minor subjects. So, the programs that are bringing about changes in regular classes, working with regular teachers, mainstreaming, if you will, I think are very, very promising. The other thing I found, and having a research orientation I lean towards research myself, is that the evaluation component in too many of these experimental programs is still weak. It's important; we really need to be able to say after a year or two or three whether or not we did accomplish our goals. I don't think we have to be afraid of it. It's not that difficult to do and I'd like to see more of that evaluation in our programs. We're working towards that in Montgomery County right now. The other area in secondary education for the learning disabled that is getting a lot of attention is career education. However, it's not just the matter of getting our kids into vocational-technical schools. If the programs are going to be of value to them, there is going to have to be some alterations and some adjustments. Some of the things that people are concerned about are the LD adolescents' continuing need for some literacy training. He still has his reading problems and maybe we shouldn't abandon that altogether. This concern is frequently expressed by parents who feel that career education or vocational training is going to completely take over and the child isn't going to get any academic training or socialization experiences or what have you. I think we need a realistic balance here. The other is that vocational or career ed programs must present a very broad range of alternatives for LD kids. They have aspirations and abilities that are quite broad; they are of normal intelligence, and we have to meet those needs. College is one of these alternatives for LD youngsters. There is in operation right now, one in Texas that I've just heard about, and one in Clarksville, Arkansas, four-year accredited schools for the gifted learning disabled. Gifted learning disabled is a young man or woman, between the ages of 18 and 25 who performs one standard deviation above the mean on either the performance or verbal scale of the Wechsler. And it's a four-year program, science, humanities, etc. And another is that career programs not have a narrow career or vocational orientation that they deal with other aspects of the young man or woman's adult life, either social or emotional. Job training should not be jobs specific; we ought to give these young men and women marketable skills that can be applied in many professions in a society such as ours where new jobs are becoming available every day and old ones are rapidly fading away. To prepare a person for just one job is unrealistic. I'd like to say just one thing. Education doesn't stop at high school and there are some organizations that have been in operation for a very long time that have been teaching literacy to non-reading or low-reading adults. For one, the Army has been involved in literacy training for a very, very long time. And there's adult basic education, Laubach Literacy, as well as the Literacy Volunteers of America. These are all organizations that are out there to help adults who can't read or have language-related problems. I don't doubt that many individuals who we could label as learning disabled are being serviced through these organizations. I took a look at them, expecting to find something very unique, very innovative and very different. I'll just say that I found they were using the same things we use, Mott, SRA, Educational Development Laboratories, Allen and Bacon Materials, etc. Frequently the instructional situation is just a matter of one to one. Tutoring is very intensive; motivation is very high. However, we're dealing with a person who has recognized his inadequacy, has recognized the limitations of being illiterate in a highly oriented society, and he's going to these people for help. Again, I was surprised at how successful they can be, using the same old things that we've had for a long time.

LESTER MANN: That was a rather superlative paper, Libby. Again, these papers will be available in written and printed form eventually. I will finish up with one very brief story from Bill Morris from Michigan. He was following up adults who had been illiterate throughout their lives, and who in fact now are 25, 30, 40 and 50, and still they can't essentially read. How did they survive? Most of them do quite poorly. But there are compensatory means. One of them managed to reach a position of managerial achievement, where he has large numbers of people working for him and makes decisions based upon paper processing. And Bill asked him, how do you manage to deal with your paper work and your reports when in fact you can't read? His reply was, well I tell the guys that I don't have time to read all this, so just tell me what it says. We'll reconvene at 1:00. Thank you all very much.

Participants - Session III

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LESTER MANN: It's my pleasure to introduce Virginia Brown. Virginia comes to us with a rather remarkable background and I think that she is one of the people best able to discuss secondary learning disabilities programs and what we have in the way of curricula or materials for them. Ginny . . . .

VIRGINIA BROWN: Thank you Lester. It's a real pleasure to be back in Pennsylvania. I was in Bradford and learned that Pennsylvania really does have oil; you can smell it around Bradford. It's good to see Carol from Iowa, and a lot of old friends. If Pat Hutchinson's here, she's from Madison, Wisconsin and is one of the best L. D. teachers I've ever seen in my whole life, you ought to get to know her. I've listened to what my colleagues have had to say about definitions and I get the feeling that everyone has his own definition, and they are going around looking for kids. And I guess my problem is just the opposite. I've always had all the kids; I'm looking for help and not definitions. But the wolf story is just a line from a William Inge play, where he says that it's useless for the sheep to pass resolutions in favor of vegetarianism while the wolf remains of a different opinion. And I guess what I'm thinking about is really the realities of what's happening in secondary ed. I'd like to ask you--how many of you know what pick-up the piece is? What is it? How are you in secondary ed? How about the average white band? Does that ring a bell? I see a few hands; the average white band. Okay, we're beginning to get there. All right, all I'm saying in the first place is that if you don't know about secondary kids you're going to be in trouble and all the rest of this is Fernald if you don't. I got my start working with Jack Cawley who kept telling me about all these esoteric terms and I thought it was really terrific to be in special ed, but the esoteric terms didn't really help with the special ed kids. And it's really more common sense than anything else. And let me just say a little bit about reality in secondary schools. People have said that we don't really have the research or that the review of the research doesn't tell what secondary schools are like and I would like to review some experiences. In the first place, it's really very hard for a school administrator or school teacher, faced with the daily routines of what goes on with secondary education, to worry a whole lot about this esoteria. There are problems, do you let the police on campus, what about the dope, what about the whole generation of babies being raised in the rest rooms? Maybe you don't have that where you are, but we certainly do. What about all the kids in school that never go to class but they like to be in school because that's where they see their friends? So, the kids are physically present. What about the secondary teacher who is now given all the goals of your curriculum and you've got to cope with future shock in there when the teacher's still in present shock? You're really not quite able to cope with it. You have to get leisure time curriculum in, and the teacher says, terrific! If I only had the leisure time to develop the leisure time curriculum I'd really love to do it. And then you've got behavioral objectives and accountability; it's what Ken Goodman called "the stairway to nowhere." You have all these tremendous objectives that satisfy some kind of an administrative demand. And so, I guess all I'm suggesting in here is that you might use your common sense a little bit and not wait for all the research studies to come out. So what's different about the secondary L. D. kid or the secondary kid, whether he's got learning disabilities or not? Okay, first is behavioral independence. You're not going to be able to treat a secondary kid like you're going to treat an elementary kid because he's going to tell you to go to you know where. I think that it's always interesting for people to look for the pure L. D. kids. After two years in the public schools, we have spent more time with attorneys and parents over kids who have had tremendous behavioral, emotional, and family problems; you name it, the whole constellation. It's pretty hard to separate out that pure L. D. kid at the secondary age. You can't really bring a lot of parental pressure to bear on a secondary kid and anyone here who has a secondary-aged child of your own, or a student, will know what I mean. It also means that he or she has got to be very heavily involved in the design of the program. I guess this bothers me--all this about what we're going to do for the kid, and what we're going to do to the kid. If that kid isn't involved in his own program, then you might as well forget it because it's not going to work in the first place. Also, the student today has greater mobility. That means he can attend school if he wants to, and if he doesn't want to go to school he just doesn't go. And there just isn't very much you're going to do about it. So, you have your daily program all set and then the kid doesn't show up. That's very discouraging for the teacher. It also means that the kid has, at the secondary level, a lot of unsupervised time available. And how he uses the unsupervised time is incredible. They use such versatility and creativity. There's also a lot of pressure on career choices. I get a little concerned about what I hear; people feel that they have to get the kid into an occupational program, get him to make a whole life choice on careers right away, or he's going to be dead. Let him play around for a while first; when you have to make that choice when you're 15 years old, it's unfortunate. I've already changed my mind five times in the past five years. You hear about long e and short e and the teacher who's trying to get across about long e and short e is going to be in a lot of trouble. You're going to have behavioral problems and the emotional problems that accompany them. A long increase in terms of life experiences means that the kid is even more unique than the elementary kid. See then, just in terms of the kid you've got all that. Now, what about the school? Credit and grade requirements? The L. D. teacher isn't going to be really tremendously accountable to anybody. And one of the reasons that the L. D. teacher cannot be accountable is that L. D. teachers don't have time to be accountable because of negotiating grade requirements, finding out all about the Carnegie Unit, hand-scheduling the kids through, and there are so many kids running around nobody can even keep track of them. There are numerous staff members with whom the kids have to interact, and with whom the L. D. teacher has to interact; there are great big school plants; and heterogeneity, and value systems. Business ed and voc ed don't want the kids because they are respectable now and they don't want to be a dumping ground. So it's just as hard to get a kid into a vocational program or business ed program as it is anything else. He's in a competitive situation. There aren't really a whole lot of options. So okay, what do you do? In the first place you don't do all the elementary stuff. I just checked four sources of secondary education and found 50 techniques that can be used in secondary ed and that's just through checking four sources. I checked a whole bunch of journals and found one technique after another that people are suggesting be used with kids who are having learning problems. I have a list here for all those kinds of things like how do we help the kid read science if the kid can't read it and all that sort of thing. There are resources from other school districts. If you really want to get some good resources, call or write to the curriculum department and tell them what your problem is; ask them what they have. You'll get all kinds of goodies from there. You know, I'm the old elementary teacher with the shopping bag and I have to scrounge everything, so I do an awful lot of writing and ask, send me this and send me that. Professional associations like National Council of Teachers in Mathematics, science associations, NCTE, Teachers of English, all those secondary professional associations have volumes out on what you do with the kid who is not achieving. And there are all sorts of ideas from parent education resources. Then somebody said, what about clinical teaching at the secondary level? You can still use Fernald, we still use Gillingham; you can still use some behavior mod but not a whole lot. And so there's some references in the paper. What if you have a kid who is not so severely disabled that he has to have a tremendously clinical program, but he still needs something? I get really upset when somebody says, that kid can't read. And I know a teacher in Duluth, Minnesota who almost lost his job, because he had secondary level students and was told they couldn't read. He bet they could. He was a new teacher, naive in the ways of the world, so he took the kids down to the local porno store and found out they could read, no problem. The secondary teacher concerned with basic reading abilities should be very careful about saying a student cannot read based on tests or school-related behaviors. It may instead be a question of discovering what the student does like to read. What about Dragster and Cycle magazines? What about porno; what about fashions; or comics and record jackets? There are all kinds of good stuff that kids can read. All right, what about reading at the secondary level? Again, well I have about four references here to books with just one suggestion after another for how you modify the curriculum for the kid. What about handwriting? It may be necessary to spend a whole lot of time motivating kids. I know teachers who have used calligraphy, and teachers who have used graphoanalysis just to get the kids into something that's of interest. And then you have something else to consider--what if the time left in school is short? Maybe you want to just teach the kid block caps or typing, so you try to get the typing teacher to take the kid. If you don't really know how to teach handwriting, Write and See tells you everything you need to know about it. You know we still end up with those basic spelling lists. The kids don't need basic lists, they need spelling in phrases. They need to get the spelling from the content areas. If the kid is an inveterate poor speller, and I think there are some, then he needs to go find a spelling checker for everything he turns in. And so spelling checkers are really tremendous, they get a big kick out of it and the kid doesn't have the pressure. Mathematics. Jack Cawley will speak about that soon, but I just wanted to suggest that there's nothing at all wrong with a calculator, also Ashlock has a nice book on erroranalysis in math. Most of the things I'm talking about we really use with the kids. What you do is teach the kids the teaching techniques. By analyzing those teaching techniques and getting the kids to have to do that they learn all about it anyway, and it's just really terrific! So, The Fabric of Mathematics, if you're looking for activity kinds of things with kids who are not really good readers, is level coded so that you have materials, methodologies, visual aids, teacher references, and kid references. Arrange for compensatory services. Call your local library headquarters and find out what kind of form has to be filled out. All you usually have to do is get a form filled out and signed by a doctor; they don't check whether it's an Ed.D., they don't even check if you really are a doctor. And all you have to do is get that paper signed and state that the kid can't read and you get the tapes for nothing. Just beautiful. Drivers license tests--your kid doesn't have to read them, most states will let you say it out loud, give it that way. All right, what about tests in the classroom? Again, I guess I get the feeling that people are down-grading what these kids can do. They have tremendous cognitive abilities most of the time. You can get those tests read to the kids but then you have to teach them how to take an oral test and that's another thing. You can get community people to start recording books, but you can't just give him the book. What you have to do is modify as you go along and let the L. D. teacher insert maps, insert graphs, insert charts, so that it's a "here's a little bit of what you're listening to and then here's a visual aid" kind of thing. So, you've got all those things. There are a million books on how to study and take tests. Go to your local university and college store. A lot of people think that the kid really should have learned to study in whatever grade level precedes the one he's in. It should have been somebody else's job. College's feel that way and they don't really go into it, although they do have reading and study skills labs. But if you get books on reading at the secondary level, they tell you how to teach kids to take tests. And don't forget how to psych out the teacher; that is a critical coping skill for a kid. They've got so many people they've got to relate to. So, you've got to teach the kids how to play the game, unless your scruples suggest that you don't. In-service education for content teachers? All I'm saying is what the scope of this is. There are some references for what you can do there. Resources from other areas of exceptionality? Deaf and hearing impaired? There are all kinds of things from the Alexander Graham Bell Association, like programmed texts on how to follow directions for kids with language problems. They don't have to read. Mental retardation? Lou Brown in Madison and all those people have tremendous methodologies that are validated. You don't do behavior mod to the kid, you teach the kid behavior mod. It's an in-self kind of thing. Sorrenson and Mahoney have a new book, Behavioral Self-Control; Watson and Tharp, Self-Directed Behavior; Malotte, Contingency Management in Education. You've got to work with the kids on things like this. Values clarification--and I think that's critical--we don't do enough for values clarification. It's a big new thing. But then values clarification can lead to problems--yeah, we burned the school down, but we did it with clear values. So, you may have the values clarified, but that doesn't do you any good. So now there is a whole new thing on the scene called moral education. But, there are lots of good things coming out in moral education, which really only means that once you've got the values clarified then how do you go about making various kinds of judgments? Wilson, Hoffman, and Colberg, all have material. Don't forget all the good stuff out of the area of the gifted, because once those kids get in L. D. programs they're usually removed from a good creative and stimulating environment. So there are all kinds of things out there. Concluding comment, don't develop a kid.

LESTER MANN: We now turn to our next speaker, who is one of the people who has braved efforts to generally develop curricula directed towards slow learners and L. D. youngsters, and it's a brave man indeed who tries it in mathematics. We have such a person here today, Dr. Jack Cawley.

JACK CAWLEY: If you would, take a piece of paper and a pencil and draw a rectangle on a sheet of paper, then split that rectangle into about eight blocks. All right, go on across the top of that rectangle, and write in the first block the word construct, you can abbreviate if you like. In the second block, the word present. In the third block, state. And in the fourth block graphically symbolized or G. S. Across the top now, construct, present, state, and graphically symbolized. Bottom row, construct, identify, state, and graphically symbolized. Now boys and girls, today you have four behavioral objectives for teaching mathematics, construct, present, state, and graphically symbolized. Those four objectives are from the teacher's standpoint, and the response objectives from the kid are construct, identify, state, and graphically symbolize. In the framework of a model they will translate themselves across practically all the mathematics that you and I will ever encounter and practically all the mathematics that any kid will encounter. If you extrapolate that model to the teacher in the first cell, construct with the kid with any of the four options on the lower cell, that is if she constructs, he can construct, if she constructs, he can identify, if she constructs, he can state, and if she constructs he can graphically symbolize or write. You have a combination of 16 behavioral interactions. We use in developing a pre-K through grade 12 mathematics program which will cover more days than the number of days the kid is in school across six different topics--geometry, fractions, etc., only those four behavioral objectives to write the entire program. Now your State of Pennsylvania, in its Prime Program, has nearly 70,000 behavioral objectives. They reason why they need 70,000 behavioral objectives and we only need four is not because we're smarter than they are, but because we use behavioral objectives and not content statements. That is the hub of the problem at the secondary school level. Every single time that we want to use behavioral objectives, we write a new set of behavioral objectives for each of the content areas that we're working in. But ironically, we describe the needs of the handicapped child as learning problems. But, what we do is write content objectives and forget about the learning that's embedded in those. And so in starting off our math program, we have to consider an alternative strategy. First, we have to make a list. What are all the things that people would tell us that a kid couldn't do so that they could use it as an excuse for not teaching him his math? And then we partialed all those out. We found a way to get around every one of those things, using nothing more than that little metric that sits in front of you. Behavioral objectives maintain their behavioral integrity and they precede any content statements that we have.

Construct a set. What set? Any set you want. The 80 percent criterion. In essence what I'm suggesting to you is that we take every problem that someone could tell us about and basically partial out the effects of that problem in mathematics education, minus now the content problem. Content's another problem which I get into. Let me ask you a question. Do you think there's affect in mathematics? Do you think there are relations that are established in mathematics, kind of a little fun in mathematics and that type of thing? Do you think people can use mathematics to interrelate with one another in different ways? Through different means of communication, manipulation, or as we call it, construct, drawing, graphically symbolic behavior? Well, let me just tell you a little bit about that, because in our mathematics program we give equivalents to affect and to cognition. The affective component of our general style is as important to us as is the cognition. And therefore, off the model which you have in front of you goes eight behaviors; we have developed an affect system. A behavioral management system. A styles of teaching system. So, for example, if you were going to construct with a youngster or a group of kids and you were going to manipulate, it would be a different environment and a different relationship than if you were going to tell them to open up their workbook to page 12 and have them all do the same thing. Because you have to structure the group, you may have to sit on the floor with them; you're going to have to pass things to one kid, get them back from another, etc. Well, in building that math program that we just finished, we attended every single step along the way to the dynamics, and the emotion, and the interactions that could be created with this, from pre-K to secondary school. We have a young man who works with us. This young kid is a freshman in college and he's taking calculus this semester. One of the persons who works for me is helping this kid mornings; he comes in a half hour early and she helps him before he starts work. And every day you hear the same thing, "stop trying to do it John; visualize it, put it in your mind as a picture. Here, like this." She draws pictures and builds things with him. Now who ever heard of calculus being translated into imagery? You can do it--what you need is a system. So the system of interaction then is what we are concerned with; it is the interrelationship of content, that is the subject matter that you want to teach the youngster by mode. That is, which one or combination of those 16 things that you have in front of you is the most efficient or best, or worst, for example, for given learners, times the algorithm or the rules that the learner uses in solving his problems? So, for example, if I gave you the task, and incidentally I don't call most of these problems because most verbal problems in textbooks are nothing more than computational tasks with words around them and this is terrible because the kids most often don't have to read the stuff in order to get the problems right, as a matter of fact, we've given non-readers hundreds of arithmetic problems and they get them all right, and the reason is that they apply computation rules and they ignore all the words anyway. But, if I were to give you the following task, two times four, you would give me a solution equivalent to what? Or equal to what? Eight. If I give you a task one times one, you would give me the answer one. If I give you the task A times A, you're going to give me the answer A. How's that going to make sense? You just gave me the identity element in the task before that. You mean to tell me that when I take the coefficient from a numeral to a letter I don't use the same rules anymore? That's right kid, you don't. Do you know how many kids we've tested in the past eight years who don't know the difference in rule changes, restructuring the use of algorithms for a simple reason? Most of what they had they learned by a rote rule rather than a basic principle. It's the whole idea of defining the things that you and I call the facts of mathematics really as principles, that is the interrelationships among concepts--the concept to, to the concept for, to give you the concept six. Now the things that I'm talking to you about now, in terms of two and four and one, etc., can be extrapolated into almost all the mathematics that a kid is likely to encounter in school. And basically we've done it. Why do

I take this tack with you then? I just have a hang-up on this. The concept two and the concept four in relationship to the principle six. If we would start off by teaching the kids these things as concepts, and as principles, when it came time for the kid to make certain rule adaptations in relationship to the content of secondary school mathematics, he wouldn't have the problems that he's been encountering now. But do you know what L. D. is doing to this kid? Rote computation, rote computation, rote computation, and rote computation! Do you know what the curriculum guide in mathematics for Cranston, Rhode Island says? For the trainable kid, place-values to take him to a hundred; for the educable kid you take him to 10,000, and for the learning disabilities you take them to a million. Scouts honor. See, it's inconceivable to get at that. All I'm trying to illustrate to you is a simple framework, one that we've used; you may develop a better one. Limiting the whole system to 16 kinds of interactions can be carried across all of the content that exists in school mathematics and can do the one thing for these kids, which I thought was the whole gist of what school was all about in the first place, and that was to have each of these kids attain his maximum potential. I shudder when I think of all these L. D. kids just being stuck into career ed programs; maybe many of them shouldn't be there, maybe that is not their maximum potential. Maybe with another system of learning and instruction we could find it. And if you some day review the literature in mathematics education, what you will find, as written by the mathematics people is this, (I've written this in the paper so you can check it out), every time the mathematicians begin to have problems with kids they are continuously relating methods and teachers. Every time that special ed has a problem with a kid we do something to the kid. And what a difference between the math people's approach that is a program change and the special ed people's approach of testing the kid and blaming the kid for what's going on. I suggest the reality is that we're dealing with interaction between the two.

Let me just finish with one thing. What I'm trying to illustrate for you is that the farther we go along in school, the less willing we are to use the channels of communication which the kid can use to do the stuff right. It's better to have one thing understood then a hundred things remembered.

LESTER MANN: It certainly was a dynamic presentation, and Jack is one of the few people that have really taken the bull by the horns in mathematics for the learning handicapped child and given us more than the rote types of pabulum that our previous scholars or practitioners have given us. So, he is one of the few who has made real gains in this field, and his curricular efforts are renown. We made some program changes; we are now going to turn to a little more obtuse area of functioning, but certainly one basic to all language activities. We're going to call upon Merrill Sitko to speak about "Speech and Language Difficulties of the Learning Disabled Child" and then we will follow-up after that with the return to the practical with Pat Gillespie, who will address herself to more concrete issues of teaching reading. So, Dr. Sitko . . . .

MERRILL SITKO: Thank you Les. I kind of feel a little bit like a mosquito in a nudist colony, I really don't know quite where to begin. However, I think that if I rely mainly on the bare facts we should get some place. Unfortunately, I'm fighting this cold and I don't know how long my voice is going to last, but if you will just bear with me for awhile. I'm from Indiana, and if you've ever been in Indiana you know that Indiana's weather at least is like the field of learning disabilities, it's up and down and crazy all over. I was going to come up here and sing the "Impossible Dream" to you, (however, because of my cold, I think I'll skip that part), because I think a lot of what we were trying to do in secondary education is an impossible dream and perhaps after the next 20 minutes, you'll see why, at least in language. I've now done two comprehensive reviews of language research, one was in the field of mental retardation, which was published in the First Review of Special Education. The other is on learning disabilities. And it's funny, the same things are happening. We find that children, in general handicapped children, reveal a large, wide variety of both linguistic and speech deficits, whether they're children, adolescents, M. R., L. D., or even emotionally disturbed. With this scarcity of research, we find that there still is very little that will help you develop what we call educationally relevant programs for individualized strategies for helping children with language and speech difficulties. I think part of this is because, as some of the other papers have pointed out, there are several disciplines involved in the field, and if special ed can't even keep its house in order, what are we going to do when we have to incorporate with L. D., speech and hearing, medicine, optometry, and psychiatry, and things like that? I have a psychiatrist friend who says, "You don't have to worry about all this definition and all the reassessment aspects in language, I can tell just by looking at a child whether he's going to have a learning problem." We happened to be in his clinic and as we looked out the window, there was his next patient coming to his appointment. He came out of the taxi backwards; he sort of backed out. He said, "there, L. D.," and he was right. The patient had severe reading problems, dyslexic was the term I think they used. I'm being facetious but I think the point is well made that we have a plethora of terms used to describe L. D. children. In language, aphasia or dyslexia are just a couple of them. A lot of people attempted to do basic learning research, but they do that in a variety of fields. So, when you're trying to interpret that field, you find that you have your learning theorists, or Skinnerian types, and they at least are trying to make some attempt at training. I refer you to the work of Rutherford, and people like that from Kansas, who are trying to develop morphology, and phonemes, and what not. But, you have people in linguistics and social linguistics and people in psycholinguistics like Chomsky or transformational grammarians and I think that probably has had the latest and most dramatic impact on the field. I think a lot of us don't realize that even psycholinguistics is an abstraction of language. They're talking about an ideal speaker, his competance, and performance, how the child acquires a complex system of rules which help him to generate and understand language. But, at least there, I think there are some exciting developments that can help us at least make some ballpark hypotheses of what some of the problems of the children might be in language. But, in general, I think the conclusion I stipulated in that paper, and I think if you just read those conclusions you can skip the other 52 pages of the paper because they're right there, is that you really don't have a reliable, valid, or educationally relevant measure of L. D. and language complacencies. We are left with a host of norm referenced global measures of language aptitudes that have modest predictive ability and virtually no diagnostic validity. That's a strong statement, but I think I can bear it out with data. In the assessment of language, particularly for the adolescent, we tend to rely too much on very limited standardized instruments like your ITPA, Peabody, and things like that which, and the ITPA is a good example, were founded on what I would call S.R. mediational theory, Osgood's theory in the '50's. Osgood himself since switched; he became a transformational grammarian, yet the revision of the ITPA is still based on the original S.R. mediational theory. So, even our instruments don't tend to reflect the flexibility of some of the theorists in the field. And the circularity is no more apparent than things like Johnny has a language deficit, and he has a syntax which is the cause of this, therefore, he must be learning disabled. And, on the other hand, these children are learning disabled because they have language problems like syntax and problems of morphology and semantics. So, you see that type of circularity; we even see it outside of language and perception when you're talking about brain-injured children and learning disability. But anyway, I would say that one of the problems in language research, at least the way I found it, was that we have not looked at language characteristics in terms of the interaction among such variables as the educational setting that the child finds himself in, as well as the teacher preparation variables, which I think are extremely important and include experiencial background and socio-cultural factors. The definition of L. D. doesn't include socio-cultural factors, but you take any teacher of inter-city children who has adolescents and let her try to deal with non-standard English dialect and see if she says if the child could not be classified learning disabled. There are other factors like emotional problems, motivational problems, and what I would call performance variables in language such as short-term memory; that's nothing considered in relationship to language functioning per se. At least in terms of the assessment, I guess one generalization I can make is, let's develop more reliable and valid measures which at least try to reflect the current developments in linguistic theory specific to the adolescent population. Most of the measures used have been developed for children. McCarthy himself said about the ITPA that the "instrument was only standardized on children up to eight or nine," and people are still using that and making references to adolescents and adults; they're giving ITPA's to adults! Use the test for what it was specified for. The main concern should be task analytic assessment. In other words, when you are dealing with children in classroom situations, what are the demands of the task? Jack talked about behavioral objectives, I think teachers have to make themselves aware of what is it you're trying to do? Is it a reading lesson, what specifically? Major says, know what you're doing, know where you're going, and know when you have arrived. I think that's extremely important. In our teacher-training programs, the first impact is developing behavioral objectives and at least, that gives you someplace to start, somewhere operationally that you can begin with a child. In terms of variability, keep in mind, not only the inter, but the intro individual differences of the learning disabled adolescents. Even if we did have the instrumentation that we need, we have to keep in mind both inter and intro learning variability among children and adolescents. You could construct tests which will isolate variability, but again, this will not consider in situ assessment and interaction of the other variables that I mentioned. Hence, what I would say is one of the biggest challenges of a language assessment program is to bring the objectives of that program in line with the behavioral characteristics and the needs of that child in that particular situation. In terms of the characteristics on the studies that I went over in learning disability, I found an extreme dearth of what I would call empirically hard-nosed investigations and methodologically sound investigations that compared say, L. D. adolescents and normals. I found many gaps in the literature, and also I found it practically impossible for me at least to generalize on findings based on L. D. samples of children to the L. D. adolescent population. And you see that all the time. If kids have these problems, that means the problem is going to be a more severe problem, but it's easy to identify quantitative differences between L. D. and normal samples but I think we have to assess more appropriately what are the qualitative changes. I don't think we can make the statement that the development of an L. D. adolescent is different from the development of a normal child or adolescent. The journals aren't clear about what exact problems the adolescent has. We can talk about speech problems, we can talk about writing problems, we can talk about reading problems in terms of specificity, and in terms of specificity of samples, or populations of which the particular researcher is trying to generalize to the extremely vague and unclear. Okay, where does that leave us? I think in the future research at least should try to focus more specifically on the language characteristics. And I hate to use processes because that term has been kind of defeated today, but I'll use the term language strategies. I think that something can come from investigating the basic processes involved in language related tasks such as reading and writing. For instance in reading, how much hierarchical organization is required? Do children have to decode perceptual bits of information, or is it true that children are mature readers and focus more on chunks of information, phrases, and clauses versus perceptually oriented letters and words? Do children or readers have to go beyond the word level, and in fact look at the semantic and syntactical clues and the redundancy inherent in discourse? Do we have to teach kids to classify and categorize before we can begin reading instruction? I think we need more basic research in terms of what processes are involved in language-related tasks. Also, I think a very important conclusion includes the differences between performance variables such as short-term memory deficits, attentional deficits, socio-cultural factors, and motivation, and how they differ from competancy, or competance variables such as lack of knowledge of specific grammatical, phonological, and semantic relationships or rules. Because they're different. In one sense, if you look at transformational grammatical theory, you're talking about deep structure, in the other you talk about performance of what the child reveals in the classroom situation. I think the two are related and more research needs to be done to judge the interaction of the two sets of variables. Let me just quickly tell you about some of the things we're trying to do in our teacher-training program at Indiana University. What we've attempted to do is to train teachers in terms of in situ types of assessment, using observation systems like category interaction, systems like the Flanners; we developed some others that some of you might be interested in. We can talk about them later. But they include science systems, rating skills, trying to get objective measure of what the teachers are doing, how she or he is interacting in the situation with the child, and evaluating some of the strategies that the child reveals in specific content related situations. For instance we find that our trainees, and we find this as well with experienced teachers dealing with adolescents, tend to use, Jack used the term rote, rote types of questionning techniques, whether they're asking for recall, cognitive memory types of answers rather than trying to develop differential thinking, problem solving, or asking kids to paraphrase. We tried to train teachers to come up with abstractions versus very low level types of demands. How can you modulate, how can you develop low to high level responses in children and adolescents? And, finally, I think that we should use the term "decision making" as a way of training teachers. In other words, train teachers to look at all types of assessment. Yes, they can use normative for certain situations, but criterion tests would probably be better. Can you develop the old criterion instruments? Look at all types of data; look at the lessons that you use as diagnostic themselves. How can you get more information from the child's errors--like using the reading miscue inventory that Berkes developed in reading. It can give you lots of information about the strategies that the child is using in reading comprehension situations. And finally, trying to look at the situation itself in terms of how does that handicapped child fit in with the rest of the children, what are you doing the same or different from the other children? How do you evaluate what you are doing? We used the terms--efficacy and validity. What's your evidence that you're effective in doing or saying, or in evaluating that you have done what you said you were going to do in that lesson; and secondly, what's the validity of what you have done, in terms of people gain and achievement, keeping those two issues of efficacy and validity as an important element of evaluation?

LESTER MANN: Thank you. I think that those of you who read his chapter on psycholinguistics with the handicapped and the retarded will see that Sam Kirk was absolutely correct when he hailed it as being one of the central chapters in evaluation of ITPA programs. We will proceed now directly to programs dealing with practical issues of instruction, and the first one will be by Pat Gillespie. She'll deal with the teaching of the learning disabled adolescent and then we're going to follow with one from Ed Summers on characteristics and some particular features to be considered.

Session III

PATRICIA GILLESPIE: I have been listening to everyone talk all day, but in the meantime, I've been watching all of you for the last four or five hours, and before I start talking, I would like to know who you are. I find it very hard to talk to groups of people without having any idea about the nature of the audience. I'm going to ask a few questions. How many of you are learning disabilities teachers on the secondary level, would you raise your hand? How many of you are psychologists? Wow--look at this! How many of you are education psychologists? Clinical psychologists? How many of you are physicians? Optometrists? Speech and hearing? Administrators? Reading teachers? Math teachers? So, we have an audience made up of mostly psychologists and teachers. I have a great deal of psychologists who take my courses and I want to express some bias that I have in the area. When I was in high school, I read a story that Benjamin Franklin had written and which had impressed me more than anything I'd ever read. I think that it applies very much to our field. And he described a type of caterpillar that buries its head in the posterior of another caterpillar and travels along. If you would move them onto something that's round, like a flower pot, they would go around and around and around and around on this flower pot until they all dropped dead and without once breaking rank, without once taking their head out of the posterior of the other caterpillar. I think this very much describes the field of learning disabilities, and the field of reading as well. My degree is in reading and special education. I first started out as a reading teacher 11 years ago, teaching secondary students in the mountains of West Virginia; teaching eighth and ninth grade reading, with eighth and ninth grade reading and English books. I happened to have majored in English as well, and so the principal told me to teach English and teach reading. So he handed me the eighth and ninth grade English and reading books and I started teaching and discovered that almost all of my class was reading somewhere, if you gave them some kind of typical standardized test, on the first or second grade reading level. I was very discouraged that first year of teaching.

The first year I taught I was 21 years old and most of my class was older at that time because they had been retained that often, and that long in school. I had one 21 year old man in my class whose goal in life was to go across the creek to the high school to go into the tenth grade; he wanted that more than anything else. His mother had her 18th child, and they pulled him out of school and so he never got there. I'm sure that he could read some things, but it was very hard for me to determine exactly where he was. So I went back to school to try to find some answers and first majored in reading. I became very frustrated because I wasn't finding many answers, so I went back and majored in special education; I still didn't know any answers. Working with juvenile offenders in a penal institution for a couple of years, we found that the average I.Q. was a hundred and the reading level of 70 percent of the young men was somewhere below fourth grade. But, these were problems to work with; you talk about motivational factors when you're working with a group of juvenile offenders, how do you motivate them to read? Things are rather bleak as far as they see it. You're not going to talk about career education that much; there's not much to gear up their interest. Well, when we were preparing for this conference, Merrill and I first wrote the paper on "Language Characteristics of the Adolescent Learning Disabled," and then started on the paper on the "Reading Characteristics of the Learning Disabled." We then started searching the literature, looking for something which is not there or at least very little, about the reading characteristics of the adolescent learning disabled. And there are just a few problems that I would like to mention. One is a definitional problem, and you've heard all day about the inability to identify the learning disabled child, and the various criteria used for the studies. One study will define the adolescent as dyslexic, or minimal brain dysfunction using varying criteria. So, even if you look at what you get, the heterogeneity across your populations varies so that it's very hard to draw any particular conclusions. But then another problem occurs, in that I feel that people in the field of learning disabilities have not taken a good hard look at what the reading process is all about. I think that what we should do in the field of learning disabilities is what Dr. Cawley has done in the math area. And looking at it very closely, as far as developing instructional strategies for learning disabled children, if you look at the field of reading you come across a multiplicity of definitions of reading and reading processes. All you need to do is go to any exhibit at ACLD, CEC, or any convention that has materials, and other people have mentioned this, and for each material you will find a different definition of reading. We come with a behavioral approach, with the BRL materials of behavioral science material, and with the Merrill Linguistics. Then you come across things like Gettegno with the words in color and there's pop-ups on television. Remember a couple of years ago, between all the Saturday morning cartoons, on came the little pop-ups in color with the blending of words. His response being don't worry about the term dyslexic, don't worry about minimal brain dysfunction because his program would solve all the problems. His reading program was a panacea. I go into classes and I see a great deal of different approaches being used with adolescent learning disabled in reading. I don't know how many of you are familiar with the ITA program, which is non-traditional orthography. And, that's used a great deal with adolescents and the reason, I hear, is that "they're not turned on to anything else so we'll just use this approach and that will motivate them." Somehow, we feel that these children learn to read and "these children" is a term that a great deal of us use. Last week Cruickshank was with us and he said that what he was most famous for was using that term "these children"; so I'll be just as guilty. Somehow, we feel that these children learn to read differently and we feel that they need different approaches. And somehow we feel that there's going to be one reading approach that's going to be better than another, and often I get the question, in fact everytime I go out into the schools, "tell me what basal reader series is the best." "Which one do you think is the best?" "Tell me which reading program you think is the best?" "We're using distard, do you think that's the answer to the reading problems?' And if you'll look at the research, there's no evidence to say that one reading program is better than another. The federal government spent a great deal of money on that issue in the sixties trying to figure out which reading approach was best in beginning instruction. And they came up with something that was mentioned earlier today--the teacher seems to be the key factor in teaching the child to read and in achieving success. Also, there's no evidence as far as I can find, and I really don't want to believe it, that these children learn to read that much differently than other children. I do know that they have problems in reading, and it's evident when we look at the research. The adolescent learning disabled child who has been identified early as having a reading problem continues to have a reading problem into the secondary schools. And I found this in working with secondary students. But, I am not convinced that they need some type of specialized program that I didn't get as a normal reader. I'm not convinced that just because they cannot read well, that you must introduce phonics, a heavy dose of phonics, or that we must introduce something like words in color and that would be the answer. It has been my experience with secondary learning disabled students that many of their reading problems are of two types: one, in their attempts to cope with their failure and fear of failure, they have developed strategies that get in their way. Have any of you read the book, How Children Fail by John Holt? I think that's a real classic on how children cope with failure. I know he talks mostly about math in that book but all of us try to cover up our mistakes and compensate for our failures. And many times the adolescent learning disabled reader will do such things as not read, not attempt to decode or encode for fear of being caught in the act of not being able to read or not being able to use the strategies. There is a saying that you can't fall out of bed if you sleep on the floor, and I think that it's very true with adolescent learning disabled. They try to the point that they're not going to try any more for fear of being chastised or ridiculed again. Another problem I see with adolescent learning disabled in the reading characteristics, is that they exhibit a great deal of the characteristics we have given them in the elementary school. There is some research to show that many of the reading strategies children use are those that have been taught to them. How many adolescent learning disabled readers have you seen that maybe will spend 45 minutes on one paragraph, going through it slowly, trying to get some meaning out of it? And you do some further investigation and discover that this child has had a heavy dose of decoding or phonics on the elementary level, and the only thing they know about the reading processes is some behavior about people getting up there and telling them these little sounds--you say these little sounds, you put them together, and you get words. And, I have seen kids on the secondary level actually try to sound out the word "the," because they're so conditioned to doing that. I've seen strange behaviors in their reading that if you trace it back, they'll tell you that some teacher told them to do that because it would help them. How many times have you told a parent to tell the child if he cannot read the word to spell it out? So the child says, "C-A-T, C-A-T." Is that going to help? Or they sound it out, or do any of these different strategies that they pick up as they go through the schools. If you look into assessment of reading problems, the reading profession is also guilty of placing on the market many tasks that are not reliable, not valid in assessing the reading problems of children. And that really is a problem in looking at the studies because the great oral reading test will not yield the same score as the speech reading test. Very few of these tests correlate across tests on the reading scores that you get. So one child could actually be scored a 3-2 in reading level in one test, and 5-0 on another test. So, that's very much of a problem. Another thing is using reading as an identification of learning disabilities. Myklebust has done this in some of his work, using a learning quotient and throwing in the reading level, and there is some research to show that the potential depends upon the reading formula you're using. So you are going to get a different child, depending on which reading formula is used. There are very many promising things going on in the field of reading right now, such as looking at the reading process. We've been talking about processing so that last night, in the middle of the night, I heard somebody say "processing" to me and I sat up with a start in bed because that's just been a term that's been going around; we don't really know what processing is all about, yet. I think that when we talk about processing in the field of learning disabilities that means one thing, when you talk about processing somewhere else that means another. And there's been some research in the field of reading--looking at children, the way they process, the way they read, and the strategies they use. I won't go into it; it's in the paper and it's quite a long discussion. But, I think there is promise such as some of the things that Goodman has done, and Carolyn Burke, who is at Indiana University now, utilizing samples of children's reading, and analyzing their cues. And I think that's very important too--don't look at errors, look at the cues, look at the strategies the adolescent is using and go from there. Many of these strategies are good strategies. You know we call them errors and we treat them that way. We try to remediate them. We are past the era as when I worked on my master's degree in remedial reading in 1965, when we were into a state of "put a pencil in his teeth and keep him from sounding out the words," and "make him sit on his hands to keep from finger pointing." Many of those things are fun and these are strategies that children are using, and perhaps need. And you can use samples of children's reading to develop constructional strategies for them on the secondary level. Merrill mentioned the decision making process and that's what we're using at Indiana University. We put a great deal of faith in teachers. I have been very upset with the types of things that have been going on the last 10 or 15 years with the dichotomy in assessment. The teacher says, I have a child who has a reading problem, and we're nowhere; we're not beyond the point of when the teacher referred. Or, the discrepancy in diagnosis--the teacher sees one thing, the clinician sees another, and they get into big arguments. I know he can do this, the clinician says, because he did it when I tested him in the principal's office. And the teacher says no he doesn't do that in the classroom. And in fact, they might both be right. The child acts one way in one environment, and another way in another environment. And that's why we stress the in situ assessment and the teacher being the integral part of the evaluation and the programming. The teacher as the decision maker. Somebody mentioned earlier that there is something wrong with criterion referenced testing in that and I have a bias there, we're not to the point in reading that we can task-analyze it and know where the hierarchies are; but if it's cognition 25, and we're moving up to cognition 50 and the child should be up on 50, and the teacher keeps prodding along, that's what's wrong with criterion referenced testing, that's what's wrong with the teacher. The teacher should have enough faith to be an effective decision maker and to say, look, it's not working, I keep trying, I'm going to try something else, I'm going to move up, I'm going to look for another alternative. And this is the approach that we're using in training pre-service teachers--providing a great deal of alternatives and utilizing almost a systems or decision-making process with them, hoping that they will not be like the caterpillars that keep going around, and around, and around the flower pot with the Frostig and the ITPA and all these programs that come out to help our learning disabled children learn to read.

LESTER MANN: Thank you very much. We'll try to get through a little earlier so we'll have time to break and then return for individual discussions with participants from the panel; so if you'll bear with us a little while longer, we'll finish up and have some discussion. We hope you'll stay to discuss with the panelists who will remain behind.

EDWARD SUMMERS: I must say that the acts this afternoon are getting tougher and tougher to follow. I'm sure that you're all suffering from an information overload at this point and I'm afraid I'm not going to help the situation. I recently diagnosed my own learning disability problem and I find that I have tremendous storage but very lousy retrieval. Actually, I'm not supposed to be here this afternoon; I'm not supposed to be here at all. Last December, because of some problems I was having, I cancelled out of the symposium. And last Friday I got a telegram from Libby and then talked to her on the telephone Monday. I received the papers Tuesday late in the afternoon, was on the plane Wednesday, and here I am. I put part of this together on the plane and part of it here. And my agreement with Libby was that even though I had not prepared a paper and I'd been out of this topic essentially since last December that I was supposed to spend maybe twenty minutes telling you about the paper I was going to prepare on that topic and share some resources with you. So, I may have to read a bit of this and it may seem somewhat disjointed but bear with me. The title of my proposed paper, "Reading Disabled Adolescents: When You've Seen One, You Have Not Seen Them All," represents the underlying concept in most of what I do in teacher education, graduate work, and research, and what I'm now calling "post elementary reading instruction"; that vast quagmire which embraces junior and senior secondary reading, reading at the college and university level, reading in junior and community colleges, reading in vocational and technical institutes, and reading as it relates to adult basic education and literacy training. You can't very well put that in a brochure describing your program, so for years I've tried to figure out what to call that and I now call it "post elementary reading instruction." And you find when you get into one of these areas that you inevitably are into all of them and if you have any kind of competance at all at reading beyond the elementary level you're skirting in all these areas. Thus, there are several forests that I'm involved in; but I also try to keep my focus on the trees within each of these forests. For a number of years I've tried to approach each of these areas from what I call a systems point of view in terms of reading instruction. And I should add, that what I need is a systems point of view with respect to planning curriculum and organizing for instruction, but not actually laying on instruction itself. I'm afraid I lean much more (at the secondary level in particular) towards teaching itself as an art form rather than anything so formal or quasi-scientific as a systems endeavor. If I train people to think in terms of systems in actually teaching adolescents, the first thing I know they're caretaking a system and the students get lost in the process. Use the systems approach to make sure it happens, but what actually happens between students and teachers is largely idiosyncratic and, in most instances, difficult to particularize to the point where it can be generalized. By the same token, I don't lay all of our ills in education at the secondary level simply to what's been labeled here a number of times as dispedagogia problems within the teacher alone. As you can see, I'm somewhat to the left of center in terms of an operant conditioning, precision teaching, or strict behavioral objectives approach, at least with the groups I come in contact with. However, I suspect that's another paper for another conference. One of the basic principles in any systems endeavor is the need to account for what's termed "the law of requisite variety." A very fancy term. That is, any system has to account for the inherent variability within the system in organizing to meet a specified end or objective. And I think this is where we have gone wrong in many of our systems applications to education to date. We have grossly underestimated or ignored the inherent variability within the clients we establish services for. As someone wrote in one of the papers, you have to decide what it is you're going to do, to whom you're going to do it, and how you're going to do it. And that's essentially the gist of my thoughts in terms of disabled adolescents in reading. To what and to whom relates to the overall delivery system for reading instruction and the how relates to the business of the pedagogy in the matter. To this point, most of the operational reading programs for adolescents have evolved as if one lays on one program for all students. However, at the secondary level we're beginning to tread differently in this regard. In reality, there is no one secondary reading program, but many secondary reading programs. Ideal--if you have 2,000 students in a seven to twelve unit, you have 2,000 separate reading programs. However, more realistically, you can begin to group into some broad needs patterns. Thus, you come up with not one reading program, but many secondary reading programs. I think we've often been misled in establishing secondary reading programs by thinking of reading too much in terms of product. So many pages to be mastered, so many skills to be inculcated, rather than as process; and here, I agree wholeheartedly with Pat--I use the word process quite differently from the way it's been used prior to this talk today. It's a process of information input within an inquiry paradigm, very often within the subject content of a discipline. With the product approach we grouped students together, we test, we select materials, we insert ourselves as reading people somewhere into the vast complexities of the secondary time table, and away we go for X number of content hours in some sort of vacuum situation labeled secondary reading. Working from a process point of view, we recognize that print is basically two-fold--an end in itself, but also a means to an end. We teach and use print as a tool in teaching. It is obligatory that we assume responsibility, again as secondary people, for also teaching those skills, abilities and attitudes that relate to mastery of print at whatever level we operate, and in whatever subject mode. And brother, the arguments and battles I've had over the years in attempting to present that point of view to secondary administrators and content rather than process or student oriented secondary teachers. Print also becomes a means to an end; that is in the aesthetic response of personal enjoyment, the experience, the broadening, and the expansion of life that can come through contact with print. And I happen to believe that one can interpret literature at many, many different levels. So, it's two-pronged. In our society, reading is a tool for academic advancement, for concept mastery, for all those things that relate to learning to organize a career, to get ahead, to participate, to earn money, to raise a family, or pay taxes, etc. But reading also has something broader--a means to a personal aesthetic experiencial end as well. And don't let anyone tell you the book is dead and reading demands are declining in North American society. Recent data indicates that adults are reading on the average of an hour and a half to two hours a day and much of it is what we would label the survival reading, the tool aspects of reading as outlined above. An interesting aside here is the fact that we can estimate that it now takes a higher level of reading ability to get a job than to hold onto and maintain oneself in a position once you have it. And where does that leave a student with minimal reading development? But society is aware of this, and it's becoming more and more fashionable in education circles to talk of back to basics, essential skills and the like. Literacy within a complex of essential skills is the current motherhood issue in education. And sometimes I feel that I should title a talk like this "This is Where I Came In." The specter of parents suing schools in response to students graduating after 12 years but still barely literate haunts many an administrator. However, let's hope that the pendulum does not swing back too far toward the game of the old adversity reproach of education. But we've drifted into the politics of reading instruction and somewhat into the area of objectives and goals of secondary education, although I happen to think ultimately that's where the whole business of learning disabilities at the secondary level lies. The systems approach helps you to organize, to make it happen. And as you fill the fundamental prerequisite in the approach, accounting for the law of requisite variety, you're inevitably into many reading programs rather than one all-inclusive program. And I see at least six secondary reading programs, but their populations are not all that sharply differentiated and lots of gray areas exist in these programs. I see in addition, an instructional system with components related to these programs consisting of some fairly stable and fairly uniform aspects. First of all, you've got to look at the students and their entry behavior. Secondly, you've got to look at the teachers and their skill in training repertoires. Third, you've got to look at the objectives component--this would be called curriculum to some. Fourth is the evaluation and measurement component including placement and formative and summative evaluation. Fifth is the instructional materials, a print component; and sixth, the methods or as we still call it in Canada, the pedagogical component. I'm here to say that it's easy to define that instructional system and exhort secondary personnel to operate in this fashion, but it's something else again to operationalize one. And that would be the balance of my hypothetical paper, the spelling out of the state of the art in broad brush fashion and the operationalization of the instructional system for reading for the six groups that I've talked about. The first group of adolescent reading needs centers around the exclusion clause in the learning disabilities definition (visual, hearing, motor handicaps, mental retardation, emotional disturbance, and environmental disadvantage). The reading needs of this group are best left to those with training in these areas--the special education personnel. I'm quite sure that within this group there are reading disabled adolescents; that is, what would one expect the deaf child to accomplish in reading at a particular age? Is the child reading up to his potential, if not he's a reading disabled adolescent. A tree within one group of trees within the large forest. The point is worth making, reading disability is relative. It's relative to the group exhibiting certain common physical, psycho-educational, et al., characteristics at any one point in time. And I submit here also, that L. D. may be relative. The second group of adolescents is the group we've been theorizing in, and I feel for the most part today the classically defined critical types, the dysphasic, the narrower description of the dyslexic, those with basic disorders within the psychological processes including interference involved in spoken or written language manifested in disorders of listening, thinking, talking, reading, writing, etc. This group requires trained personnel to either lay on complete instructional programs or supplement and offer consultative services to secondary school personnel involved in academics but lacking the skills to adjust to these needs. Obviously, reading instruction will vary from pole to pole within this group. My feeling is that we need to take good, solid subject teachers at the secondary level and provide them with the insight and skills to work with these groups, either in special programs, supplementary programs allied to the regular program, and the like. The nature of the program will vary as it should. I'm not thoroughly convinced that secondary mainstreaming is the answer here. Any subject teacher will tell you that we've been mainstreaming these groups by years, for years, by default at the secondary level. They've been in the classes. They've been in the lower end of the marking curve for generations, what I often refer to as the lost balls in the tall weeds of the secondary school curriculum. Mainstreaming may have some promise with good teacher and in-service training, however, the class load of the average secondary teacher, among other factors, is another ball game in relation to the elementary school schedule, and the potential for extended individual attention is often nil. The third group of adolescent reading needs includes a group in the gray area between those falling under the obvious inclusion category and the fringe of the regular secondary academic program. These are, for lack of a better term, the underachievers, the undermotivated, the psychological drop-out, the force-out, the push-out in the secondary curriculum. The overriding characteristic of this group is positive though, the overriding characteristic is potential. They would exhibit the greatest discrepancy between their actual achievement and potential in reading. There are a few classically defined learning disabilities types in this group; no special education students, and reading with this group has little to do with pathology. It's a lap or gap in the learning cycle in the educational experience. It's not that they cannot read, but they will not read or study, have little motivation, except to get by, etc., they're adverse to the goals of secondary education, academic achievement, study, and the whole thing. This group has for years formed a core for secondary remedial reading efforts and the like. The youngsters are non-handicapped students who have come up against the brick wall of the secondary academic hurdle. They have never been funded adequately except for instances where states or school districts, under such programs as "Right to Read" and the like, have felt that secondary schools have some responsibility for its extended instruction in literacy. These groups are coming in the back door under a liberal definition of learning disabled funding, as pointed out in a number of sources and papers here. Irrespective of what we ultimately label this funding category, we need to get services to them. Particularly, reading needs attention. I'm not sure that what we need here is intrusion by special education. Yes, I said intrusion. But, more attention to the overall paradigm of what secondary education is and must become. This becomes more of a philosophical educational question than a learning disabilities question. The under-achiever seems to be the most broadly applicable label for this group. If special educators wish to broaden their definition of specific learning disorders and include all problems of underachievement for a service--welcome to the club. People who have been working with this problem for years need all the help they can get. And, if special educators will take their usual approach and try to solve the problem by throwing money at it, educators will gladly provide the population. But don't expect to be welcomed with open arms. Well, I have three other categories of reading disability that I'll not go into here. They include students in regular classrooms with day by day needs in reading and study skills; and the final two, the reading disabled teacher of adolescents, and the reading disabled secondary administrator, counselor, and school psychologist who works with adolescents. I must admit, that I get a little uneasy with the specter of L. D. people, working from pathologically oriented paradigms based largely on younger students, suddenly mucking around and scaring the hell out of the average secondary classroom teacher or those working with educationally oriented reading and study problems of a corrective or mildly debilitating nature. For years we've scared the hell out of secondary teachers by exhorting them to all be teachers of reading without adequate explanation of what we mean. We have made some good progress in developing a better perspective on this problem, the problem of the disabled reader at the secondary level, the soft-core area that's been defined here although I would be the first to admit that we have a long way to go. However, I would also submit that a significantly greater number of teachers at the secondary level are aware of the need to consider process as well as content, students as well as curriculum, and broader goals in secondary education and the way reading fits into their secondary education objectives. Let's not bugger it up by telling them all we're going to mainstream, implying that we're going to develop them into contingency management experts with 150 to 200 students per day, often with two to four subject preparations. Special education takes care of the exclusion in the definition and the hard core inclusions for learning disabilities. But leave the soft core up to us. Help us in our efforts of course, but don't scare people off with your pseudo-science, your bewildering array of scientific jargon, and a suggestion that every teacher must now also be a teacher of the learning disabled student. I'm quite sure that after this bit of pejorative rhetoric, I'll never get back across the border alive. However, I'm quite willing to cross swords with any of you on this topic and I sense that's what this symposium is all about. One final thing as preparation for this paper, maybe this is why I left it in December, subconsciously I'm not sure. But I ran a search of a rather large information system, the ERIC System, and the usual way of searching the ERIC System is to select a concept. I did this a little differently; I just pulled out everything on learning disabilities from the ERIC System--1966 report literature onward and 1969 journal literature onward. And that's 1400 pieces of information that relate to learning disabilities. Now it's interesting, I would say less than one to two percent of it has anything to say about secondary learning disabilities as we've talked about it here today. And there's practically nothing in there that has anything to do with secondary education today. And I'd like to submit as a final blast here, that if you're going to get into this area, if you're going to offer your services and your help beyond the inclusion and exclusion categories, you've got to get into another body of literature. And Virginia mentioned some of this, for example, she mentioned four professional textbooks in secondary reading. I have a list of 55 that have been published since 1960 that I'll send out to you. I also have another file of 1500 pieces of research information related to teaching, reading and content areas, establishing secondary reading programs, working with reading disabled students, and the like. There's a lot of literature there; we've done some work here and I think we should try to pull those things together with what the regular education program at the secondary level has to offer and what special education might give to us. I may be drawn and quartered now. I'm going to stop, but just keep in mind that Philadelphia's also known as the City of Brotherly Love.

LESTER MANN: Thank you Ed. I think that you essentially have your paper; we'll insist that you turn it in one of these days. Now, I think we'll shift the scene, as we come into the final stages of our symposium. I think the operational end of all of our endeavors, of course, is some type of useful, satisfying occupation for the handicapped youngsters, and this includes the learning disabled adolescent as well. And now, Paul Irvine, who has grappled on a daily basis, laboring in the vineyards of the schools with me, has indeed attempted to do something about all of this. Paul will direct himself to "Exploratory Occupational Education for Learning Disabled Pupils of the Secondary Level." Paul . . . .

PAUL IRVINE: Thank you very much. As you have been told by several of the presenters today, relatively little attention has been given to secondary programs for learning disabled young people. There is very, very little attention, almost no attention, and almost no literature on the subject of occupational preparation for learning disabled adolescents. In preparation for this paper and this conference I also turned to the ERIC System and had a search made of items on programs of occupational preparation or vocational education for the learning disabled, and the number of references which I obtained was zero. I'm sure one of the reasons for this is simply that young people tend to discard those labels, or those labels fall off them, that we have in an unkind way, pasted on them when they were in elementary school. Those labels tend to disappear at the secondary level. Now there are programs going on, and some good ones, for occupational preparation for the learning disabled; however, they tend not to turn up as programs for the learning disabled. The learning disabled youngsters who are getting the occupational preparation programs are incorporated either into regular occupational education or in some cases into special kinds of occupational preparation programs which are conducted for youngsters with a variety of learning handicaps. In the literature of vocational education, it's interesting that not very much attention has been paid to vocational education for the handicapped and again there's nothing, as far as I can tell, in the area of vocational education for the learning disabled. As I'm sure you all know, until very recently it was very rare for special pupils to be welcomed into vocational education programs and very rare, even rarer for vocational educators to establish special programs for youngsters with special needs. The attitude has changed in recent years, slowly at least, and probably the major reason isn't that we in special education have been especially persuasive, but rather the major reason, I think, is that the Vocational Education Act of 1968 and henceforth has required that ten percent of federal funds for vocational education be used for the handicapped. Now the school system should assume responsibility for training to the point of employability. Every handicapped student has the potential to become employable. And I should add this, with the possible exception and I emphasize possible, the possible exception of those very few learning disabled or otherwise handicapped pupils who will be going on to college too often there is no commitment of this sort on the part of the school system. No commitment for training young people to the point of employability. And too often in the cases where there is such a commitment, special education and occupational education are not working together to provide the kinds of programs that are needed. And one thing that has been apparent over a number of years is that we've had many occupational preparation programs that have been of poor quality primarily because we in special education have tried to operate these programs on our own. We are not occupational educators, and we have operated some pretty dismal programs. Now, I want to talk with you this afternoon about a specific phase of occupational preparation which I have come to consider very, very important and to which very little attention has been paid in school systems, so far as I know, and certainly in the literature. And this is what I'm calling exploratory occupational education for kids between the ages of roughly 14, or 15, to 17, or maybe 18. I'm defining this, or describing this as a program which gives the pupil enough experience, both academic learning and hands-on occupational experience, enough experience in one or more occupational fields that he and his teachers can determine first of all, what occupation seems to be the most suitable for him on the basis of demonstrated abilities and secondly, what training program appears to be most appropriate to enable the student to achieve his selected occupational objective. In the past, this kind of exploration has been received by pupils too often once he was in the program designed to prepare him to be one thing or another, with the student being unsuccessful, and often with a succession of failures which obviously will reduce the probability of ultimate success. So what is proposed here is a specific separate program of occupational exploration in which there is no failure. There can be a determination, more often than not there is a determination, that a particular occupational field is not suitable. But the student doesn't have to fail anything to find that out. I should state, probably at this point, that such a program can be carried out at little additional expense to the school system after whatever initial expense might be involved for equipment and remodeling that needs to be done, etc. The students that we're talking about is what the program at this age level will consist of. And, I would see an occupational education program, an exploratory program, not as an add on essentially but as replacing other program elements that we have found to be less than really effective in preparing young people for a non-dependent adult life. Traditional academics is the most obvious example, but we also might talk in terms of non-vocationally oriented industrial arts, home economics courses, etc. I want to use as an example an exploratory occupational program referred to as EOE, which gets mixed up with OEO sometimes; it really is a local program which has been developed and is still being developed by the Board of Cooperative Education Services in New York State. This is a regional public school agency, not like your Intermediate Units in Pennsylvania. And keep in mind as I talk through the next few minutes that I am talking about an exploratory program. The purpose is not to train a young person in an occupation, but to give him enough experience in various occupations that he can make a realistic decision about his vocational goals. I think that I said that the program seems to most appropriately serve youngsters between the ages of 14 or 15, and about 17 or maybe 18. In the program that I'm using, as an example, we serve not only handicapped pupils but non-handicapped pupils as well, at least pupils that have not been diagnosed or designated as handicapped. The program serves learning disabled pupils along with pupils of various other kinds of learning handicaps. The population that I will be referring to here is a population of young people who have been placed in special classes or if they are in regular school programs are receiving resource room assistance. In the population that I'm talking about there is a wide range of intelligence--from mild to moderate retardation to usually not higher than bright-normal academic achievement; from first or second grade level to as high as senior high school level in the two subjects. Just in terms of the mechanics, in this particular model, pupils attend the EOE program for one half of each school day--that's either morning or afternoon, being transported to a regional campus from their home schools. The half day that each student is at EOE is divided about equally between occupational instruction in a shop setting conducted by a vocational teacher and related academic instruction provided by a special education teacher. While an occupation is being explored in the shop, the related academic instruction focuses on things such as the vocabulary of the occupation, the mathematics and reading skills needed, study of the occupation itself, working conditions, duties, pay, required knowledge and skills for success in the occupation, etc. It has been found in this program that this represents a very good way, or at least a better way, than what had been done before to teach academics. And just as some youngsters have demonstrated in the porno shop that they could read better than the teacher thought they could, here you can find pupils who are reading automobile repair manuals and that kind of thing much more effectively than they've ever read anything in their lives, and maybe more effectively then some of us could. One important consideration is that in this program, in the shop and classroom areas, the occupational and related academics areas are adjacent and the two teachers in each double area function as a team and communicate constantly. There are eight such shop and classroom areas and they cover occupational areas such as metal trades, automotive trades, office occupations, food trades, health occupations including cosmetology, and agricultural occupations. Typically, a pupil will explore one occupational area each semester. It is possible, however, for a student to change just about any time when appropriate. Most pupils will remain in the EOE program for two years, but whenever a pupil is ready to move on to another stage it is possible for him to do so. On the basis of the experience this particular staff has had with developing this program and conducting it, they are convinced that the learning disabled and other handicapped pupils feel better about school, better about themselves, and that they achieve better in the final phase of occupational preparation, than they would have, we think, without an effective exploratory program. I think the results of this program are attributable primarily to several factors: first of all, there is no failure and that's important. Secondly, the occupational education teachers are teaching the occupational aspects but, with a special ed kind of orientation, and that hasn't been as impossible to achieve as many of us would have thought a few years ago. The occupational teachers, along with the special ed teachers, are supportive of the kids, they're committed to the kids; there is none of the old attitude that's bothered us so much in the past of telling kids in a vocational preparation program to either shape up or ship out. This is our program, if you can make it--fine, if you can't, go find something else. Also, throughout the instructional program, special attention is paid to the disabilities of the students, so that instruction really is appropriate and the students do learn. Attention is given to the development of realistic vocational and personal goals. We don't tell a student that he doesn't have the ability to do a particular thing; we don't have to because we can give him experience and help him to reach his own conclusion. One reason why that is important is because sometimes kids fool us. Also, there's an emphasis in this program, as there should be in all vocational programs, on positive attitudes toward work--the dignity of work, the work ethic. Now, this often gets lost in occupational preparation programs. There are well spelled out short termed goals which help to foster control. For example, how do you discourage flitting from one thing to another, as all youngsters but especially handicapped youngsters are inclined to do at this difficult phase of their life? The program is more than occupational education and more than occupational orientation. It demonstrates to a student that it is possible to go into an occupation and begin to master it in spite of the learning problems that have so often made the student uncomfortable, and that so often have demoralized the student in previous school situations. I feel that it is important that both vocational educators and special educators begin to devote more attention to occupational education and particularly to this phase which I believe to be essential for many youngsters who will otherwise flounder if we take them from the usual pre-voc kind of stage and put them all of a sudden into a situation where they're supposed to be learning to be workers in a given occupation.

LESTER MANN: Thank you very much Paul. We have gone from A to Z and Naomi Z'gmond is used to being last on programs; she is inevitably stuck there. Well, I'm sure she has much to say to us, and she'll give us the clue with a final statement from "Preparing Teachers for Secondary Learning Disabilities Programs."

NAOMI ZIGMOND: It is terrible to be last. Not only because we're all tired, you're tired and I'm tired, and not only because when we started off the meeting we all agreed that there was not very much to say about secondary programs and we have managed to sit here for five hours listening to people talk, and I wonder if there is anything left to say about secondary programs. And it's not only because I have sat for five hours without saying anything, anybody who knows me will know that is very unusual behavior, but also because of the topic that was assigned to me. I find it hard, because gnawing away at the back of my mind is the old adage that those who can--do, those who can't--teach, and those who can't teach--teach teachers. And here I am telling you about preparing teachers. With the growth of demand for secondary programs for learning disabled kids, we have responded by putting teachers into positions of teaching secondary children with learning disabilities in spite of the fact that it's quite possible that that teacher was not specifically prepared for that job. Most training programs have not, or had not in the past, designed programs with that particular goal in mind. And so it may be that you're out there teaching, although your training was based primarily on an elementary model. And generally we agree that this is unacceptable. Most of the people out in the field say, help I wasn't trained to do what I'm doing. Or the universities say, we really should design a special program for training secondary teachers. Now, we are saying that in spite of the fact that there's no evidence that people trained at the elementary level will be any better secondary teachers than people trained at the secondary level, or that we know what we're doing when we train secondary level teachers, or that we know what we're doing when we train elementary level teachers, but in spite of the fact that we don't know what we're doing, and I say that candidly as a teacher trainer, we are responding to the needs of designing secondary programs. We have more and more such programs being designed. We're doing that very thing at the University of Pittsburgh. In the designing of the program, even if we assume that it's an appropriate thing to do, there is very little agreement among teacher educators of what the content of that program should be. Different programs will emphasize different kinds of skills. Some will emphasize direct service to children or teaching skills; some will emphasize consultative kinds of skills or indirect services to the learning disability children; some of them will emphasize career and vocational preparation; and some will emphasize, or limit almost exclusively to, the teaching of basic skills or basic academic needs. As accountability catches up with us, both as teacher trainers and in the field as teachers, I think there's some general agreement about the way in which programs are going, and a lot of questions that still have to be answered. The general agreement may fall into two categories: that we simply must graduate kids who have basic skills from schools; and that it's not the bandwagon of back to basics. It's appalling to go into classrooms where there are 14 year old kids, who on some tests, valid as they may be, can measure as having normal abilities and yet who still are reading at a primer level. And it's more appalling when we think that some of those kids have spent three or four years in learning disability programs at the elementary level. So one of the basic things I think we agree on is that we have to teach kids basic skills. In spite of that agreement, I have to recall a story that a colleague told me when she was in Pittsburgh last fall about her history in the field of learning disabilities and the emphasis on teaching kids reading, writing, spelling and arithmetic. She works at the learning center in Montreal and this is a center in a hospital base. And the center's history began with a psychiatric philosophy. And so she said, for a few years they were very entrenched in psychiatry and in self concept and they developed a lot of very happy failures, as someone has said before. And then they decided that it wasn't the answer since the kids weren't prepared to do anything although they were pretty happy with themselves. And so they got into the psychomotor movement and they trampolined the kids to death, and then they had some really agile failures. And so they moved out of that and they started to work on basic skills and they focused almost entirely on reading, writing, spelling, and arithmetic. And they were working, by this time, certainly with older kids, with adolescent level kids and they had some tremendous success. The kids were doing this as an after school program and they came consistently and they learned how to read, and they worked very hard. But it took about two suicides of high school graduates before they took stock of what they were doing. They found that there was no joy in the kid's lives. These kids were obsessed with being able to achieve at the level they were supposed to achieve, and were working very hard at it, but they didn't have any time left for anything else. They hadn't learned how to have a good time. They hadn't known what a good time was. And so they turned themselves around, and while they still emphasized learning basic skills and learning how to read, they made sure that every single lesson that those kids engaged in was fun; that they were learning socially acceptable skills as well. It's out of that that my colleague has a book on card games for teaching anything you want to teach. The book is called Deal Me In. I think that's a philosophy that we have to remember--although we have to focus our teacher training programs on helping teachers teach kids how to read, write, spell, and do arithmetic, we have to remember that there's a lot more to being a kid then being able to read, even though that's certainly very important. And so, we also have to do other things. We have to teach them how to make use of their leisure time, and make sure that they have some to make use of. We have to teach them information. We have to teach them tools for living quite apart from the academic skills. And this is the sort of thing we have to help our teachers know how to teach. That's one of the areas of agreement among teacher training programs. Emphasize basic skills, but also emphasize a whole bunch of other things the kids have to learn. Another one is that secondary level kids especially, but probably most special education children, should be mainstreamed although. as many people have said before me, we admit that the mainstream is polluted. Many of us emphasize consulting skills in our teachers, that is, that they have to work with regular educators, and they have to help regular educators accommodate the needs of our special children. And yet, in the same breath, we say that we cannot expect very much change from regular education. Well, we have to and that's one area that we simply must work on. We cannot work on teacher training of learning disability children in a vacuum. We must work on it in conjunction with changes in the regular schools or all our efforts will be for naught. Now as accountability catches up with us, there's lots of questions. Not just areas of agreement. For one thing, we can't train teachers how to teach unless we know what they're supposed to teach. And we can't know what they're supposed to teach until we have decided what it is we want our kids to know. Now, we've already said that we want them to know how to read and write and spell, but we've also said that we want them to know other things. We have to know where they're going, what kinds of jobs they're going into, and what are the skills that you have to have for those jobs? And then we might be able to define how it is that you go about teaching the kids those things. What it is a kid should know is not just an arbitrary decision. That's something that a community, educators, parents, and other members of a whole community have to sit down and decide. We can't have a national standard of what kids are going to be able to do when they leave high school. But, we have to sit down and figure out what is it we expect our children to be able to do when they leave school and then be sure that our program addresses itself to that. That's what accountability is. First deciding what the pupil's outcome, if you'll excuse the word, is going to be. Once we've decided on pupil outcomes, we have to be more specific in terms of deciding what things should the teacher do in order to facilitate those pupil outcomes. As Virginia said, there are lots of techniques out there, there are lots of books that say lots of things, but most of those are anecdotes, most of those people saying, I tried such and such, you know, it worked, and why don't you go out and try it. That's not really defining teacher behaviors in terms of facilitating pupil's outcomes. That's me telling you a story and you telling your friend a story. We have to know what specific things facilitate learning of a particular task. And then we can begin to teach teachers how to do that. But, until we isolate out what does a teacher has to be able to do, and even more, what is it she's trying to accomplish in the end, we're not going to be very successful. We also are not very far along in terms of teacher selection. What are the variables aside from the skills, the tricks that we teach the teacher how to do? What are the other variables: personality dimensions, identification with the population that's to be served, empathy, intangibles as we described them before? We're going to have to be more tangible if we're going to develop personnel. And then what kind of teacher are we expecting to train, and can we train a resource teacher, a teacher consultant, and a self-contained class teacher all in the same breath? Can we do it all in one program? Are they all the same skills? These are some of the questions that we really have to address ourselves to. And, as we begin to train teachers of secondary kids, I think that we have to be very cautious because investing our energies at the secondary level has certain implications. I have known very few kids who have been identified as learning disabled only when they got into a secondary school. And, one of my strong concerns is that though we look at a learning disability as something wrong with the circuitry in the child, as something the matter with the child, that a learning disability is really a breakdown in a relationship between a teacher and a child. The field of learning disabilities has grown and become very popular because it's such an optimistic field; because we say that though there is something the matter with the kid, that it's teachable. We can do something about it. If we're good teachers, if we can figure out what the matter is, then we can solve the problem. And many people have a magic number of years in which the problem can be solved. In two years he's going to be normal. In four years he's going to be normal. But, in the end, he's always going to be normal. And if we identify the kids early enough and provide them with the right combination of teaching, and of course teaching isn't teaching unless somebody's learning something, and if we provide them with teaching, then that kid's going to be normal. And it seems to me that our cry for programs at the secondary level can only be interpreted as a failure to meet the needs of those kids earlier. So as we develop secondary programs, I hope that we still take a very harsh look at what's going on in our elementary learning disability programs. What's the matter at that level? Is it a different animal than we thought that we're trying to teach, or are we simply not teaching because kids that are spending four years in an elementary program and entering high school with minimal academic skills are being failed by their teachers? So that's one of the cautions. Another is that we have to look at our secondary schools. As I said before, we cannot train our L. D. teachers in a vacuum. Part of the problem of the learning disabled child in the secondary school, is that secondary schools are not individualized in personalized learning environments in which children can pursue their own kinds of goals and interests. And as Don said, there are lots of kids out there in the secondary schools who are floundering. One very dramatic class session that I had with my students pinpointed this for me. We were going over a case study, and one of the students brought in a tape recording of a twelve-year old who was doing an oral reading test, so that we could listen to the reading. And I must admit that we spent ten minutes in pained silence listening to this child struggle through the very first paragraph of the Gates-McKillop Reading Diagnostic Test. And all of us were really agonized to listen to him struggle through it; and one among us, a woman who is a doctoral student of mine from New York City, spoke up first and said, what's so bad about that? Half the kids in New York are graduating with reading levels like that. And it was a perspective that really shook us, because certainly we are not going to deal with half of the kids graduating from high school in New York, but it's a serious problem that our secondary schools and our elementary schools are not educating our kids. The third thing, as we begin to do teacher training, is to figure out where we should put our priorities, in in-service or pre-service? And I raise that because this last weekend, I was at a conference in which some data was reported on the numbers of teachers entering and leaving regular education fields. The data suggested that 50 percent of teachers in the elementary and secondary regular education, were between the ages of 30 and 50 and that another 30 percent were below the age of 30. Which meant that the first 50 percent were tenured and 30 percent were below the age of 30 and on their way to being tenured. What it meant was that for the next long time those people are going to be with us in the schools. And it suggested that a lot of our efforts at introducing individualized instruction at a pre-service level for elementary and secondary teachers may be not the place to put all your efforts. A similar kind of manpower study is probably appropriate in special education. Again, should those of us at the university be investing most of our efforts at pre-service training, or should we be going out to the field and doing a lot more in-service training seeing that there aren't going to be tremendously more jobs than there are now and we might as well be working on the people that are already out there? I think that until we begin to address ourselves to some of the questions that we have had today, until we begin to define teacher behaviors in terms of pupil outcomes, or in more simple language, until we figure out what we want our kids to be able to do, and what they have to be able to do in order to do that, and what a teacher has to be able to do in order to get the kids to the point where they can do the things that we want them to do, and until we can do all that in a systematic way, I don't think we're going to produce effective teachers who can make an impact on kids. And after all, that's the name of the game, isn't it.

LESTER MANN: Thank you very much, Naomi. A few brief words, I think first of all that the rather overwhelming excellence of the panel is to be commented upon. I think that if there have been previous conferences in secondary L. D. anywhere, this would certainly hold its own in honorate. I want to thank the M. C. for a superlative performance, and before you do break and run, there is an evaluation form in your little packet. Please fill it out, it will only take two minutes. But, we want to thank you all for being patient with us and participating, it's been a real pleasure having you here, and we want to thank you for coming.

Session IV: Saturday Morning

As the reader progresses through Session IV, he will undoubtably be struck by the lack of agreement by the participants. Indeed, after two days of discussion, arguing, and debating, a consensus on key issues never evolved. The group's failure to reach agreement is very revealing of the state of the art of education for secondary learning disability students. However, the reader should not become discouraged because it is heartening to know that even if no solutions were found at least the profession has begun to ask the right questions.

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LESTER MANN: There are some issues that Libby has raised here, that I don't believe we really resolved yesterday, they are perhaps unresolvable, but at least merit some consideration. We would like to submit these to you briefly and we will entertain any others that you might have. So Libby?

LIBBY GOODMAN: The first thing we want to talk about is the problem of establishing the category of LD at the secondary level. I don't really think that we all agree with one another, as to definition. Don Hammill, I think you have the most conservative point of view. Perhaps you can start us off. I wonder if we should really take a line quite as hard as yours?

LESTER MANN: You will remember folks that Donald established the magical three percent figure yesterday. Why three percent?

DON HAMMILL: Well, I think first, that the question should be put the other way, if not three percent--what? And the "what" can lead us into harms way. It is the "what" that leads us back into regular education. Eventually, we in the field of learning disabilities have to justify our existence, and if we're going to take a figure of 15 percent or 20 percent, we've got to remember that this would not be spread smoothly across the country. That 20 percent would collect in certain parts, so, if you get a 20 percent for a national figure, you're talking 80 percent in some school districts. And the question becomes, do we really want to do that? My position is that I want to handle handicapped children; I also want to see services provided to all those youngsters who have learning and behavior problems of one kind or another, but I don't want to have to call them all handicapped in order to get services for them. Therefore, if we're going to have to fund services under the auspices of the handicapped, I would like to see those services applied only to the truly handicapped children whether they be five percent, three percent, two percent, or one percent, or whatever they happen to be. Any incidence figure really cannot be validated at the present time. That's just the way I feel about it, but I'm amenable. Do you think we can get away with 20 percent? Or ten? There isn't money.

LEE WIEDERHOLT: Do you all know how the three percent came into being first?

LESTER MANN: Left over federally--right?

LEE WIEDERHOLT: Yes, Sam Kirk and that committee that went into the U. S. Office said,"we have this handicapped population that's not being served in the schools." The legislature asked,"how many kids do you have," and Sam and his group said,"10 to 15 to 20 percent," but that they didn't know. The legislators said,"well we don't have too much money." So Sam and the crowd said, "How much do you have," and they said, "oh, enough for about three percent," and he said "Okay--three percent." But, I think there are two things that come out of this; the first is the question of, I guess it's more philosophical than anything, what percentage of the population are we going to allow to be labeled as handicapped? I don't believe it's any great solace to any kid to be called handicapped. So, I think that I would not like to see a broad application of the L D category because being handicapped is not something nice; it's not really good for a kid to be labeled handicapped, particularly where there's a question. And the next point is, can we ever as a profession, really differentiate out special ed and regular ed with a line drawn in between, and have the kids fall either here or there? Or are we going to have to, in conjunction with regular education, set up bridge programs without labeling kids? In other words, you can have distinct categories of the blind and the deaf and what have you, but it seems to me that there is a population of kids that is going to remain questionable no matter where you draw the line. Perhaps if we could form a union with regular ed, funding for LD could come through both; it actually comes from both in many cases around the country now, since general education is serving many possible LD kids who are not labeled. I believe that only those kids who demonstrate clear symptoms and that we can label with assurance as being LD, ED, or MR should be labeled as such.

LESTER MANN: Somebody's assurances may be somebody else's hesitancies, you know. If you want to let me set my criteria for any kind of handicapped group, I can indeed stick with my categories very nicely; but you may not agree with them. And I think this is one of the problems. We need categories, labels if you will, in any case, for systematic funding.

NAOMI ZIGMOND: And the interesting problem with labeling learning disabilities, is that people are clamoring to get in, not to get out.

LESTER MANN: Not all, some parents are clamoring to get their kids out. Even LD is starting to sound pejorative all of a sudden; all labels become pejorative, including the gifted after a while, I guess. So we have that problem. Perhaps the problem is that we really don't have anything much to offer specifically of value to the category; if we did, we wouldn't worry about labels so much.

LEE WIEDERHOLT: Lester, you said you have to label a kid in order to get service. I think that could be changed. Do you label kids as remedial reading cases to get service?

LESTER MANN: Absolutely. How do you get a remedial reading teacher to work with a pupil without having him labeled as a remedial reading problem?

JACK CAWLEY: In Missouri right now, they've changed the thing a little bit, they unit fund, and they've been funding remedial reading teachers at 3500 dollars per teacher. And they fund LD teachers now at almost six thousand dollars a unit, so every single remedial reading teacher in the state now has changed to an LD teacher. We had a conference at the university in November, trying to find out who and what were the responsibilities of the remedial reading people and what were the responsibilities of the LD people. Well, we spent two days and ten papers and we ended up with a blank, and we still don't know the difference between the two, as far as actual on the job function is concerned.

VIRGINIA BROWN: What good remedial people want, and what good LD people want is really something very different, in terms of comprehensiveness and sophistication. LD should end up with a service model which is very different from current and usual, let us say unimodal or modal, remedial reading practices. Unfortunately, modal LD practice right now is like remedial reading--the old remedial reading!

MERRILL SITKO: There is another problem that's dealing with the issue of delivery services. I don't know about some of the other states, but our state has something called least restrictive alternatives, Individualized Educational Plans, IEP. Trying to get away from the label, they say, a child will be placed in the program where there are the least restrictive alternatives in terms of his needs. They would pick the delivery service that is most applicable to that individual. So, if it's a blind child, he or she would need a special class, or a special school for the blind. It's like the other side of labels, how do you define what's restrictive and what's not restrictive. I'm just wondering if that's the case in some of the other states.

VIRGINIA BROWN: I don't think you can ever really get away from labels as long as you have categorical or even broad categorical funding. People keep saying, let's get away from all the labels, but I don't think we're ever going to.

NAOMI ZIGMOND: I really think the problem of definition is simply one of money. In our state I think there is a money cutback and we're going to have to settle with one percent of the kids called LD and that that will define who is going to be LD. That doesn't mean that the rest of the population, the rest of the 14 percent if you want to go up to 15, isn't also learning disabled; it just means that they are not going to be the responsibilities of special educators.

PAT GILLESPIE: Indiana is doing the same thing. They put a one percent maximum on reimbursement for LD, and if a child is identified below that one percent, the school system has to pick it up without the state reimbursing it. In our center, we're in all of south central Indiana, we're having a problem finding even that one percent to reimburse.

NAOMI ZIGMOND: Well, that was the other thing that came out of yesterday's meeting. I think there were some people in the audience saying how hard it was to define the LD child. It isn't hard! They should be very obvious--or we shouldn't be worrying about them.

PAT GILLESPIE: Our definition in our state is out of federal legislation. The term neurologically impaired was added to it, so it's called neurologically impaired/learning disabled. The words "severe" and "chronic" were also added to the definition and then the "no more than one percent." In our state, a pediatrician must establish eligibility for the child. Even before an educator can see the child, the pediatrician must say that this child has a neurological impairment. And that's where we're having the problem--pediatricians are not willing to be slapped with this responsibility. They don't want to say, I'm the one who determines this child's eligibility. So that's where we're having the holdup in identifying kids.

JANET LERNER: Well, I don't know if we should be talking about practice in various states. What is practice in Indiana may simply be due to inadequate legislation. If we at the conference are trying to present a position that should be taken, I think we ought to go beyond what exists and consult the implications of our practices. For example, do we want to include the neurologically impaired in our concept? If so, we may be talking about the severely, rather than the mildly disabled.

DON HAMMILL: Neurologists' techniques are as crude as ours, and since they don't have to teach the child, I see no reason to deal with neurologists at all for this. If we picked the bottom one percent of nonretarded, nonpsychotic, school failures, 99 percent of such a group (I'm making up another percentage), would be a predominantly neurologically involved group--there's just no way around it.

LESTER MANN: Not necessarily. We also get children who are just simply unable to learn to read easily.

VIRGINIA BROWN: Let's go back to Don's statement of yesterday, when he was talking about supporting the idea of process as he said that the LD child is a youngster who, regardless of his environment, is going to stand out. What about an alternative to this in terms of an extreme environmental position, saying that there are no learning disabled kids but only learning disabled environments. Would anyone accept this? Actually, the sophistication of a school system itself can make a difference in terms of which kids get selected as LD and which don't. I was thinking that in Madison, Wisconsin a kid would have appropriate instructional resources within one school but not in another so that at the first he will be accommodated by regular education but he would be a learning disabled child at the second. So we could, in fact, move kids around educationally not on the basis of labels but for particular instructional purposes if we so choose. Maybe you can say, always with that yes, that kid would really be handicapped in any environment, but if you give him a more sophisticated environment the handicap isn't relevant educationally.

JIM YSSELDYKE: But where in the world do we draw the line? When we're talking definition, are we talking about individual or about environmental differences, or what? It's still the case that, given the state of our present knowledge, you can pretty well do as you please with kids. That's what scares me; we are unable to precisely, reliably, and validly say whom it is we're dealing with. So we say to the people in the field, pick whom you will. Call them what you will. Do with them what you want. And then we will call them LD or whatever else you wish.

VIRGINIA BROWN: It bothers me too, but I think that's the reality of the situation. It's--what do you do Monday morning? You say, okay, we should have precise diagnoses and precise instructional decisions. But very practically, Monday morning you've got to pick somebody for your programs. You can't wait ten years for people to find terrific tests and it's still going to depend on the sophistication of the instructional support system as to whom we call LD or not.

LESTER MANN: Ed, can we call upon you for a statement or a position?

ED SUMMERS: I get back to the very opening statement here about picking percentages and labeling kids on the basis of ultimate treatment. I'd rather keep it much broader and talk about the percentage of kids we've got to look at, and then within that percentage, that broader percentage, get to labeling later on. I'd like to broaden that percentage, because we constantly talk as if we've got the kids right there, there's a percentage, there's treatment, and there's funds for that treatment. I think you need a much broader label to provide funds for the needed diagnoses, for the needed sifting out, and sorting out. I think if you switch the terminology around and talk about what is needed to do the overall assessment and treatment of learning problems, you will work with a much broader percentage. I'm obviously in favor of a broader percentage.

JACK CAWLEY: One of the things I think it would be good for us to put into perspective is the fact that, regardless of what figures we use and how we put it, I think we have to look at the secondary school being different from the elementary school. You talk about one percent, Don. But let's take an example, a first grade kid who's got a learning disability, and he's X amount of time discrepant. Then you take a tenth grade kid who has a learning disability, and he's six or eight years discrepant. How do we put things in priority? If we don't feel that we can straighten out the elementary kid so that when he gets to secondary school he doesn't have a bad problem, maybe it would be smarter to put our resources in the secondary school to serve the massively discrepant youngsters. I mean kids who by this time may be ten years behind.

NAOMI ZIGMOND: How many such kids do you think there are?

JACK CAWLEY: Well, if we're not curing them in the elementary school, I have to assume there are as many as there were at the elementary level. Plus all the others whose discrepancies gradually emerged as school progressed.

LIBBY GOODMAN: What makes you so sure we can do anything for secondary students who have such a tremendous discrepancy?

JACK CAWLEY: Well, I'm not sure that we can. But I don't want to see us keep Don's one percent figure so nice and even. If you have one percent figure at the elementary level, it will be a higher one at the secondary.

ED SUMMERS: Libby, you're talking about what can we do for the secondary kid, you are back to treatment again! We've first got to get the funds in to even look at kids at the secondary level. And I think that's why you've got to think of a much broader percentage.

DON HAMMILL: I want to get in here. If you go to that broader percent, I keep coming back to it, you open Pandora's Box, and do you really want to step through it? For example, I would hate to see our field, small as it is, sucked into curing the social ills of our society. For example, there are literally millions in this country who reach high school. And many of them barely achieve functional reading. That's a six, seven years discrepancy. That is the rule almost, not the exception, in every urban school district around. I've got an ego this big. I'm arrogant, I am all of these things, but I pale at the thought of taking that on. Atlas I'm not.

ED SUMMERS: The whole point we were making yesterday, in a number of ways, is that special education does not have to, nor should they even presume to, step through that door alone. You've got a problem here that's broader than special education. You've got a problem here that incorporates all of secondary education.

NAOMI ZIGMOND: We have to be careful not to be swallowed up.

ED SUMMERS: I'm not so sure I'd be concerned with your being swallowed up, as I would be concerned with your taking over. What is coming through from Don is that you're willing to work with that small percentage but you want to have your cake and eat it too. You don't want to get involved with the rest of it. But my point is if you're going to work with the problem effectively, you've got to get involved in the broader problem.

DON HAMMILL: First, Lee and I have written one book on resource rooms and have written another one just recently. These are addressed to those who teach these youngsters; that 15 to 20 percent. So on one hand, I'm perfectly willing to provide services for those people. On the other, through books like Lerner's and Myers and Hammill, which are addressed to my much smaller percentage, the focus is on that smaller percentage I was talking about. I think we can do both. But the question is, what are we specifically going to do under the handicapped label?

CAROL BRADLEY: A number of the things that you're talking about, are things that are going to be handled, as you pointed out, by federal terminology. The least restrictive alternative thing is the new federal terminology that we're going to have to deal with. It simply is a new way of saying mainstreaming which hopefully will stop some of the abuses of that system. Most states are moving to separating their support systems from their instructional systems in terms of funding. If states do that, and they are doing that, then the school environment will make a difference as to who gets placed where. There is nothing that should prevent a child from being labeled as handicapped and yet the most appropriate program for him is a regular classroom with general education auxiliary services. So, those kinds of issues are going to be solved, and they're going to be solved very pragmatically by dollars, as you've pointed out. But what I'd like to have us decide is whether that is the only way to define LD at the secondary level. If it is, we'll just go that way.

LESTER MANN: We'll want to go to definition in a moment. But Paul (Irvine) has been sitting here waiting his turn.

PAUL IRVINE: I think we need to get back to the concept of exceptionality. Don is saying that poor achievement is no longer the exception, it's the rule. And, I think that we have to remind people that we are talking about the exceptions.

DON HAMMILL: Let me give an example, a brief point. I visited one of the large urban school districts to evaluate their LD program, and they had something like 37 units of LD resource; it's a self-contained operation with art. Now, you go into those classrooms, and they're sitting there, they're in rows, they're various shades, they're all being taught in readers. The kids turn around and look at you and then go back. You pull out the drawer and every last one of them is either a dull-normal child, reading at mental age level, or a bright kid who's underachieving. Now, this district has 137,000 students in it. Not an LD one in the LD program. But when I looked around, I found them. I found three classes of them being run under speech and language. You walk in that room and you realize immediately these are not kids for whom curriculum adaptation is going to work. These are not the kids for whom you're going to find out where they are on the entrance tests, if they're criterion referenced tests and plug them in. These kids are not verbal. They are just hyper; they are not mainstreamable at this age, and they're not retarded, and they're not austistic. You can just call that very easily.

LESTER MANN: They're hyper and they're not verbal--I wonder how they are going to score nonretarded on a traditional test. And I would certainly question an LD diagnosis unless we want to debase the term.

JANET LERNER: Would it be feasible to divide our considerations into two parts: one--for the severely handicapped, which would be the three percent, give or take, and two--the mildly retarded who need the resource room and other services, Ed was talking about. Maybe our answers to funding and criteria for identifying instructional services, and so on, will have to be different for these two groups.

LIBBY GOODMAN: But should that group, that you're calling mildly retarded, be our responsibility?

JANET LERNER: Well, I think that what we should do rather than arguing at this point whether they should or not, is try to divide our discussion into these two parts. Discuss one, and set up a position on that, and then discuss the other.

LESTER MANN: May I ask a simple question? Can anybody here define what a secondary level learning disabled individual is? Besides via percentages?

NAOMI ZIGMOND: I think that the problem is that at the secondary level you're not going to have that type of drama as you did in the elementary school. Don won't be able to walk in at the secondary level and see these hyperactive, nonverbal kids.

LESTER MANN: I don't think his kids are LD kids by my definition anyway.

NAOMI ZIGMOND: They may be kids with serious learning disabilities but they just don't look like that any more by the time they get into high school, so you can't go by gut feelings that this kid smells like a learning disabled child after he hits the secondary level.

JANET LERNER: Well, is it agreed then that the first group, whoever they are, constitutes the three percent of the federal definition?

LESTER MANN: No, we decided it's an arbitrary statistical figure to keep us out of trouble.

VIRGINIA BROWN: Is it possible to take part of the funds that Ed was talking about in terms of the broader perspective? You know, we keep talking about wanting to work with regular ed. If we're going to categorize funds, or persons, or something like that, why don't we say we're going to look at the whole range of problems and say--okay, we're going to put X amount of resources into that, instead of special education being a leftover kind of thing? Why don't we just say, all right, we'll take part of the money and put it to work with the secondary ed people to see what it's going to take to bring all problems there?

CAROL BRADLEY: What we're doing in Iowa to control that, Ginny, is to assign persons who will operate in a nondirect service fashion. We sponsor many professionals who will work in nondirect service to the regular classroom. They may be funded under handicapped funds. Legislation permits this in order to maintain those who are handicapped in regular classrooms.

LESTER MANN: I've still heard no definition anywhere as to what a secondary level LD kid is. Are we going to say he doesn't really exist except in terms of kids who need additional resources, or as three percenters?

MERRILL SITKO: Well, I'm not ready with a definition but I think I can bring something up that hasn't really been mentioned. At the secondary level, the teachers I've talked with are worried about their reading problems being six or seven years behind, but I think most of them are more worried about behavior management. I'm getting into the ED realm since we've all agreed that the emotionality and the social aspect of the problem are confounded with the cognitive or the academic. And I think we shouldn't just be talking about the learning disability learning problem, but also learning and emotion to show that there is this interaction, this confounding at that level. It's not just pure learning disability that we're talking about.

LEE WEIDERHOLT: There's another side and I believe that it goes back to something Janet said and what Naomi said. I am with a project, a title three project for adolescents with learning disabilities, and they were mainstreaming all of them. So, I said, this doesn't make sense, they're severely handicapped, or they're moderately handicapped, there's a range--where are they? Well, I met with the parents one night in this district, and the parents in ACLD said, our kids are on the street, they're dropouts. And so I said to the school, let's look at all the kids that you have; they were serving as many as they could possibly serve, but I forget the percentage. I asked, are all these kids doing well in the mainstream? And they said, oh yes, we just work with the teachers and they provide supplemental instruction. That just doesn't compute, it simply does not compute. At the end of the year they gathered data, and they had follow-up data the subsequent year. Let me give you an example. In one school there were approximately 30 kids being served. Of those thirty, about 23 made significant gains. However, there was a group that just did not achieve. Their behavior was not disruptive; they had learned to control their behavior, but there was simply no achievement. They had been given some sort of instructional support; not the type of intensive support that they needed. So, I think you really can't say about our learning disability adolescent, ah ha!--he's experiencing school failure therefore he will be recognizable because of deviant behavior, obvious deviant behavior. I think many of them have learned to mask it and just coast.

MERRILL SITKO: It depends on what you mean by emotional problems because many people define it in terms of acting out, but people like Bill Morrison pay a lot of attention to the withdrawn child. When you talk about emotionality you have to bring motivation into it. When the child won't attempt academic tasks because of the failure experiences, etc., he doesn't have the coping strategies--he's also an emotional problem.

JIM YSSELDYKE: Let's come back to the original point, Lester, and what is a secondary LD child?

LESTER MANN: Thank you Jim.

JIM YSSELDYKE: And I'm not going to define it because I'm not sure we can.

LESTER MANN: We've been talking for three days about something we can't define?

JIM YSSELDYKE: This whole discussion reminds me very much of a discussion that I sat in about two weeks ago. Most of us were university personnel, familiar with the whole problem of grade inflation. It's kind of like trying to define what is a Dean's List student. Do we use a percentage, do we use some kind of a cutoff score, or what? I think you've got situational differences. The point was brought up in that discussion that fifty two percent of the individuals at the University of Virginia were on the Dean's List. Now that's like saying that fifty two percent of the kids in large urban public schools are learning disabled. But I think that all it takes nowadays to be called LD is for a kid to demonstrate a certain degree of either deviance or incompetence, which comes to the attention of some societal-sanctioned labeler, who stamps him LD. And that's about where we are. I have problems with the whole concept of secondary LD or LD in general as a hypothetical contract.

LESTER MANN: Well, that's the other thing. If we can't define "it," then we shouldn't have a program for "it," should we?

NAOMI ZIGMOND: Part of the definition is chronicity, that is, a pupil has had problems all along and he gets up to the secondary school and continues to have problems. At the elementary level it is easier to define the characteristics of the child. Now, that kid continues through school, makes it to secondary school, and continues to have problems. He is the one we're dealing with--he is the secondary LD child.

LESTER MANN: So you're saying, he's the one we identified initially as an LD child. Maybe that's a beginning. Thank Heaven that somebody is brave enough to define secondary LD.

LIBBY GOODMAN: Well, ultimately, perhaps when we have a continuum of services through the elementary and secondary schools, we will have youngsters who have been identified early and continue to have a problem, and they will go on into our secondary LD programs. But right now we are starting secondary LD programs in Montgomery County from scratch. We have to recognize that LD students are coming from two sources, those who have been in special education programs, have received some help, have been identified or what have you, and a second group of those who have never been identified. For this second group, we don't have LD information being passed along with them, perhaps we can get it by going into their records, but we have to identify those students too.

JANET LERNER: As far as identification goes, what age range are we talking about?

LIBBY GOODMAN: Secondary, 12 to 18.

JANET LERNER: The new mandatory legislation is from 3 to 21. At the lower end we're starting with three year olds now. Are we going to include 21 year olds?

LESTER MANN: 21 year olds? Why not.

JANET LERNER: So it would be 12 through 21? In one situation in Illinois this has become a problem because the student was past 18 and had graduated, yet wanted to come back for some additional services. Was he eligible for special education aid under an LD label? The lawyers were working on that particular problem as I left.

DON HAMMILL: We may be playing some sort of strange game with the handicapped here. For example, the youngsters I described in my famous or infamous percentage definition are relatively easy to pick up in the preschool because their problem is essentially one of language. What would happen if you were to identify those youngsters, and then follow them through school not adding to that group, not polluting it with all kinds of kids? What would happen to the kids whom you can clearly identify at the preschool level? They may not even make it to high school.

JIM YSSELDYKE: How are you going to identify them? That's still my problem.

DON HAMMILL: They'll flunk any test you put in front of them.

LESTER MANN: I'm not sure but that there isn't some measure of LD with more severely handicapped Don!

LIBBY GOODMAN: Don, do you know what happens to those kids in Montgomery County? I know the ones you're talking about. They typically are picked up even before they get into kindergarten and they go to our Child Development Center. From there, they go into one of two alternative programs. They either go to elementary programs for the learning disabled, or they go to our school for language and hearing impaired children. The more severe, of course, go to the facility for the language impaired; the less severe, find their way into the elementary programs for the learning disabled.

NAOMI ZIGMOND: Those going to the elementary LD program, how long do they stay there?

LIBBY GOODMAN: They typically do not do very well. These are not the same type of LD youngsters that we usually have in our LD program. They provide intense instruction for two years and then return the children to regular education. We are ready to mainstream them after two years in our program, or at least 75 or 80 percent of them. These are the ones who do not make it back to the mainstream, and we envision continuing support all the way through for them.

VIRGINIA BROWN: We're still back to Jim's point about are we dealing with a hypothetical construct, and I guess if push came to shove, we'd say yes we are. I don't really believe there is any such thing as a learning disabilities category, as a category. When it comes to treatment, at least in terms of practicality, we have kids whose presenting problems, at least immediate problems, are emotional or whatever. You have kids with language and cognition and learning problems, and you need somebody who really knows how to find out under what conditions those kids will learn. And then you have other people who can deal with emotionality. We've just kind of taken kids from those categories and thrown them together and said, they're LD. But, I guess if it really came down to it, I don't believe there is any such thing Libby, and when you say you are going out to find the secondary LD kid, I wish you luck. I just don't think that he exists in the same kind of conceptual framework that many other kinds of things do.

DON HAMMILL: Are you saying that there is not a child who is what we might have called in another day--developmentally aphasic?

VIRGINIA BROWN: At the high school level?

LESTER MANN: We should not include those in the LD category.

DON HAMMILL: Those are the only real LD kids. Everything else is ppor teaching, social problems . . . .

LESTER MANN: I really believe that if you are going to go that way you have language impaired, neurologically impaired, or mentally retarded youngsters. And if you think that language function separates from cognition, it doesn't of course. I would rather go back to Hinshelwood, Orton, and all the rest, and stick with dyslexia and say that's our LD population if you want to really restrict LD to have these cases. But Don, you are identifying LD with more severe problem than I would like to and Virginia, you are dismissing the problem.

VIRGINIA BROWN: It is still the questions, does he need an instructionally different setting again? Under what conditions does he learn?

JACK CAWLEY: I want to go back to something Naomi was talking about, when you talk about teacher training for LD, in terms of defining the LD kid, for example. We've got so many different universities, so many different perspectives, so many students going out into the community with so many different orientations. There are three or four universities in Connecticut now, training teachers in LD and I tell you that if you put four teachers, one LD teacher from each university, in the same room they couldn't talk to each other! Our university is very heavily dominated by psycholinguists and perceptual psychologists, and the psych department provides most of the theoretical base. But you go to one of the other universities, and they're all behavior mod-- hard-lined as you will ever come across in your life. Go to still another place, and they talk about your motor training; that's all they're getting. How do you expect anything to emerge in the way of consensus from this Tower of Babel? Last year we sat down and we asked various people for copies of their syllabi and of their exams for certain courses. You know that what is LD by the reading list and the exam in one university is MR in another, and they're using the same reading list. Not only that, you couldn't tell the difference on the exam between one and the other for different categories. And it was a fairly good sampling of schools. Well, if that's the stage of the game we're at, I agree with Don. Simply buy the proposition of discrepancy or disparity, in some reasonable or relative state.

NAOMI ZIGMOND: At the secondary level it would have to be a serious disparity, that is more than the rest of the student population.

JACK CAWLEY: More than the individual. We've done a lot of work in Philadelphia. Philadelphia only has 400 kids on its LD roll. Officially certified LD kids. They've got 10,000 retarded. Swaumscot, Massachusetts has a total school population of 3200 kids, 375 are LD, and 6 are retarded.

LESTER MANN: Well, I think there is both a lack of scientific acumen showing and a good deal of intellectual dishonesty. I really believe that special educators are afraid in some communities of the nasty sounding categories.

DONALD DESHLER: I want to ask Jack a question. If we are going to go to a disparity concept for defining the population, how do we determine the discrepancy?

JACK CAWLEY: The secondary school has dealt with this for years, with the Otis and the Stanford Achievement. They had two procedures--homogeneous grouping and attrition. They've dealt with LD kids for years; they just didn't know it. As you're sitting here talking about defining LD kids, I was thinking of all the problem kids that I ever worked with. I know there were some really messed up kids in those classes. How did they ever get there? They ended up there because the kid couldn't read six grades above his level. And so, he was referred and finally ended up down there. But I think it could be handled by recognizing that there are differences across schools, and that expectancies must vary. I'd like to make one more statement in terms of the work we've done. We found that the MR kid who's two and one half years below MA and the learning disability kid who is two and one half years below MA were not significantly different on over a hundred achievers variables we studied. We did find a lot of differences between the so-called good MR, the kid who was reading at about his MA, and the average kid who was reading. There were massive differences there, but not between the other two groups. If you were whacked up, you were whacked up whether your IQ was 70 or whether your IQ was 105 and you couldn't cut it academically.

LIBBY GOODMAN: We seem to have come to the point where we are saying that the definition or identification of secondary LD students is going to be based on the principle of disparity or a degree of underachievement. What about "processes?"

JACK CAWLEY: From our point of view, processes is defined by a content - by mode - by algorithm system, because you don't always get it at the content level. Let me give you an example. I can write a verbal problem which kids cannot read at all and yet get 100 percent correct. I can rewrite the problems in another way, so that the kids can read them without question, and get them wrong. Well, that's what your processing is, the way the kid must process the information so that if he doesn't process information, he comes out wrong.

LIBBY GOODMAN: But I think process in the way you're using it and the way Don was talking about it yesterday, is something very, very different here. The way Jack is talking about process, and the way you're talking about process, I think you're refocusing on process in identifying your LD population.

DON HAMMILL: Now I don't mind processes that I can see or demonstrate. I don't want to classify children on the basis of psychological constructs that never existed in the first place.

LIBBY GOODMAN: I think we're all agreed on that.

LESTER MANN: Are we all agreed on that?

DON HAMMILL: No.

JIM YSSELDYKE: I've run into a lot of arguments with people on the whole notion of process ability training. I think a lot of the confusion comes about because what some people are talking about as processes are really conceptualizations by some theorist. And another individual comes along and talks about processes in terms of test identified and test-named processes.

I think the kinds of things you're talking about Jack, I would probably label as conceptual aspects of mathematics, for example, or reading, or language development, etc. And we're certainly not going to be able at this point, to figure out what role conceptualization plays in the development of such skills.

JACK CAWLEY: I would suggest that maybe it isn't so much the process that we want to use to train the process, but to recognize the process as a means through which the kid does things. For example, we basically boiled school down to a few hundred objectives. These are life-long objectives, they don't change no matter what it is as long as you keep "process constant." Now when you inbed content on here, you're raising another issue. So, for example, one process that kids go through school all their lives is, given a word learner defines the word. Given an object to construct, learner constructs the object. Okay, what object? Any object you want. Of what complexity? It depends on the cognitive task you're doing. These in essence become life-long objectives. What you do find is that if you use these loosely consistent behavioral terms, you can identify and translate the needs into any subject matter. So, for example, the learner needs help in defining words, in physics, in history, in social studies, in science, it doesn't make any difference. But when you give him certain select words to define and he can't do it, what you've done is created a situation where you build a test which this kid can't do well on and then talk about his deficiencies. You have used content to control your processing system, and I think that's wrong. You have to partial out content or control or remediate it to your own needs and ends. You can give the ITPA in physics, music, history, social studies, and everything else, as a standard instrument, by just using different words and different problems. And that's the way we tried to do it so that when we present the psycho ed information to the teacher, every teacher in every subject can translate that information. When a single teacher works a kid all day long, as she switches subjects she doesn't have to switch needs.

DON HAMMILL: I guess one reason I feel comfortable with this discussion defining LD is that I believe that eventually my position will prevail. When you think time is on your side, you don't negotiate. At a time of accountability, when we have to describe the child for whom we're going to provide services, the people who pushed the 20 percent simply can't. They cannot justify their programs for the handicapped because they can't delimit what they do from what is supposed to be done in regular education. Therefore, I think that position is untenable. If you were to stop all special education funding, the kids I'm talking about would still have to be specially programmed for. They would have to be managed.

NAOMI ZIGMOND: No, they could be excluded from school.

JIM YSSELDYKE: Personally I foresee some real big difficulties with your definition Don. Within a very short period of time, the school people who would be dealing with the 20 percent would be unable to provide the needed funding, and within a very short period of time the courts would be called upon to differentiate between these 20 percent and your one percent in regard to whom should be receiving special services. What must happen is that we are going to see a situation in which funding is cut off for learning disabled kids.

DON HAMMILL: Then we'll have to go back and walk the route we walked to get LD's set up in the first place, to get funds to support handicapped children.

ED SUMMERS: And then you'll have to put another label on it.

DON HAMMILL: I don't care about the labels. The children exist, you can call them anything you want, they exist, they are real, and I swear to God they're there even though there are people trained in LD across the country who have never seen handicapped learners. Some people have just seen little black kids who don't read too good and that's their concept of LD.

JIM YSSELDYKE: I think that is reflected in what's happening in Pennsylvania right now. On the state level we're moving to a "noncategorical system."

LESTER MANN: We are moving to Cartesian categories, back to Descartes again, with physical and mental handicaps being the categories.

JIM YSSELDYKE: We have the blind, the deaf, and two additional categories: mentally handicapped and physically handicapped. Teachers will be certified as teachers of the mentally and physically handicapped. Your ED and your MR kids are placed with teachers of the mentally handicapped, your LD kid, within this new definition, is placed with teachers of the physically handicapped.

MERRILL SITKO: Down to Libby's question. How is a teacher or how is an administrator going to differentiate between the learning problem youngster and the mentally retarded youngster or the learning disabled youngster?

NAOMI ZIGMOND: It just boils down to money. How much money can you afford for handicapped children?

PAT GILLESPIE: If that is the case, I'd like to know where that puts us because as university people and professionals, we're training people to go out into the field. We say one thing and the local schools and the states are doing another thing. I'd like to know where they're getting their information to do what they're doing?

LESTER MANN: From people like you, Don. Seriously, if you are going to train your students on percent diagnosis definition, we're in trouble.

CAROL BRADLEY: We're not getting anything from the universities. We're just going to do secondary LD. Of the things I've heard today, the only definitional elements are financial limitations, situational variables, medical judgments, trained people's opinions, whoever they are, relative disparity, etc., that means I'll go home and just do it. I'll just write it because we can't wait any longer.

PAT GILLESPIE: But you respond to the state legislature, the rules. Where do they get their information to make those laws, rules, and regulations?

CAROL BRADLEY: We write the laws.

PAT GILLESPIE: Well, in our state that's not the case. The State Department of Public Instruction does not write the rules and regulations, the legislature does. Some political group writes the rules. A committee.

VIRGINIA BROWN: In Wisconsin they tried. They said, all right people in the field, please bring us all your wisdom because we would like to have something that makes sense to the people, something that's implementable, and something that is sound. And it's just like the meeting today, nobody can agree on anything.

PAT GILLESPIE: And so they laugh at us. And what happened in Indiana is that the governor is a pediatrician and he wrote the definition.

VIRGINIA BROWN: They had to, what choice did they have?

CAROL BRADLEY: There's another thing to think about. Far reaching general educators, thinking general educators, are concerned with looking at every child with a problem as handicapped and securing funds to help him. Ultimately we'll be cutting into their funds for support to general education. We'll be putting them in a position of having a significantly reduced share of responsibility while increasing our share, and changing the way the whole system ought to work. Those who are thinking don't want us to do that. They want to be able to go to the legislature and say that 30 percent, or whatever, of our kids right now aren't making it with the present financial support system. And we think that's a justifiable reason for asking for funds for them.

PAUL IRVINE: We've got an interesting example in New York right now of definitions based primarily on financial considerations. We have new regulations defining the various categories of the handicapped. And learning disability is defined basically, by exclusion. He is a child who is not retarded, disturbed, neurologically impaired, and almost every kind of problem is eliminated, and what's left over are LD kids and they are not eligible for state reimbursement. According to the New York State department, every LD kid is getting service because he is being provided for by the local district in regular education. But he is not handicapped!

CAROL BRADLEY: To respond to the University's concern, maybe that's just the way life is. Maybe you don't wait until you have the perfect car before you try to build one. Maybe what we, people in state departments and LEA's, need to expect is that we're just going to have to put ourselves out and write something, but we will have to depend on you people to help us to decide whether what we're doing is right. Rules can be changed quickly if we have new information.

PAT GILLESPIE: I think that what's happening in the state departments and legislatures is that they are working with secondary ignorance. They're reading our literature and we are ignorant. And that's secondary ignorance because they're interpreting it. We just did a study on state legislation; we called states and asked them for their definition of learning disabilities. We found that not every state is using that federal definition; only about 60 percent. Most of them are using other definitions, and I don't know where they got them from. So, a child in Mississippi can be identified as LD and move to Tennessee and be placed in another category. And I think it causes us to be professionally schizophrenic. If I'm training someone in Indiana, and I have a definition, as long as they all stay in Indiana they are all working under the same definition--if they go somewhere else they may not be relevant to their jobs.

NAOMI ZIGMOND: Yes, but what you are training your teachers to do couldn't be so unique that it wouldn't apply to a kid that crossed state lines.

PAT GILLESPIE: Getting that child to you to get the help, whatever it is, is the problem.

CAROL BRADLEY: One of the things the universities can do is when you turn out teachers who are "LD teachers" tell us, the people who are going to be hiring those people, what you consider to be their skills. And then let the school administrators sort it out and pick the kind of people they want in those programs.

JIM YSSELDYKE: I think that we have a great deal of emotionality here. It goes back to what Jack was saying--we have people who are so heavily and emotionally involved in their concepts of learning disability. It is motor training, behavioral modification, psychotherapy, this standpoint, that standpoint, etc. What bothers me is that too much emotional involvement could well kill us all in terms of lack of agreement as to what we are dealing with. It's like getting a bunch of ministers together arguing about theological issues with a number of different perspectives.

JANET LERNER: Different perspectives are a strength rather than a weakness because it permits you to think about the ranges of the field. I think it would be very bad if everyone agreed that this is it. That would certainly limit and narrow the field.

JIM YSSELDYKE: That is probably very true, but all this disagreement creates is a confused situation for the educators designing systematic programs. Then you get the differences in state interpretations.

LESTER MANN: This is remarkable. We've finished a full day of conference on secondary LD and not a soul here agrees. It's interesting.

JANET LERNER: It reflects the nature of the field.

DON HAMMILL: I'm not sure we don't agree. I'm not sure that we couldn't sit down and agree, for example, that the bottom one percent qualifies.

LESTER MANN: If we could lock ourselves in a room for a month, perhaps we would agree at the end.

JANET LERNER: Are there any things that we have agreed on thus far? I think that there are some things that we've agreed on. I think we have agreed, for example, that there are two groups--mildly and . . . .

DON HAMMILL: NO! I don't agree that what people call mildly handicapped at the elementary or the secondary levels is the mild form of what I would call the severe cases.

JANET LERNER: All right, then you do agree there are severe cases?

DON HAMMILL: No. I say that from my point of view, there are severe LD cases and there are mild LD cases, but when the cases are mild I can't separate them out from the others.

LESTER MANN: AHHHHHHHHHH, some little bit of light comes out. Now if we could just define what severe would be. What is a severe LD case, Don?

DON HAMMILL: That you could define. You could define it on the basis of a child who is about three years behind in basic reading or something and isn't retarded.

LESTER MANN: All right, a little light.

JANET LERNER: Doesn't that describe the severely disadvantaged?

DON HAMMILL: No, the disadvantaged thing is irrelevant, just as is the mentally retarded thing.

JANET LERNER: Profoundly disadvantaged?

DON HAMMILL: No, I wouldn't take profoundly disadvantaged as LD.

JANET LERNER: Well, he may be three years retarded in reading, though. A profoundly disadvantaged child may easily be three years retarded in reading.

LESTER MANN: Still no agreement, but we must move on. Is there a special technology for these individuals? Is there a special technology at the secondary level that would apply to a secondary LD child or youth as opposed to MR, ED, etc.

NAOMI ZIGMOND: Special in the sense that it shouldn't be applied to anyone else?

LESTER MANN: Specifically geared to LD needs and problems and deficits.

JANET LERNER: No. There is not a technology that is discrete and different.

LESTER MANN: That is an important statement.

JACK CAWLEY: Are you saying that it does not now exist or are you saying that it should not exist?

ED SUMMERS: I have one final comment on our other category before we leave it. I'm reminded of a comment when Chomsky was once asked what does linguistics have to offer reading, and he said not a damned thing. When you asked the question--what does special education have to offer to regular education at the secondary level, you better make it clear that it is also not a damned thing except for one to two percent of the population, unless you're prepared to tackle some of the questions of technology.

LESTER MANN: That may well be. Or it may be that we offer a particular type of intensive hospital care, so to speak, as opposed to the general or out-patient clinical care. But we can provide them with a one to five ratio with an intensive focus upon academics or whatever. That may be the big difference, the only difference, really. But is there technology? Jack, you've been working on this?

JACK CAWLEY: Well, I don't know. I bet we could come closer to agreeing on what to do with them than we can on who they are. You have to take into consideration a couple of facts. One, the fact of life is that every kid is in school five or six hours a day. In the secondary school you have one or two basic options: either he goes to different teachers for every subject, and rotates as everybody else does, or he stays constant.

JANET LERNER: Or a combination.

JACK CAWLEY: Yes. I think you can specify this. We could agree basically on what to do. I think the question is now how do you do it with a kid who moves from teacher to teacher? How do you get every teacher to be aware of his needs? Well, you go back and you quote a cliche on individualized instruction. Basically for our purposes we define individualized instruction by whatever teacher gives kid, kid gets right. Because we assume that that is basically why she was doing it, why he was doing it. And then you can operationalize the thing because the teacher immediately picks up a set of data as to whether or not the thing is reasonable enough because the kid is either doing it, or he is not doing it. I think we can deal with most any problem that I've ever heard ascribed to an LD child, even though I'm not sure if he is right today in any subject matter. This is the thing that I don't understand. Why did we have to develop perceptual training programs when we could have done perceptual things in science; we could have taught the preschool kid a science program, and at least enriched him in many ways. We could have taught him literature, whatever is appropriate for the kid within the same things. I don't understand why we need to think that we're going to have to isolate something. I think we want to translate those techniques or those interactions back to this stuff.

VIRGINIA BROWN: Jack, this is the thing that concerns me. If LD specialists are going to request money, they are then going to develop their own thing so they'll have something to spend the money on. It's like someone who has more money than he can handle and doesn't know what to do with it in the candy shop. At the same time, I don't like the assumption that secondary ed, given the same money, wouldn't know what to do with it or that elementary ed, given the same kind of money, wouldn't know what to do with it. I think there are lots of people out there who would teach learning handicapped kids through art, science, etc., and to me, those are better alternatives of choice for the kid than putting him in a balance beam program any day.

JANET LERNER: Or physical education?

VIRGINIA BROWN: Well P. E. does have values in many cases. But I'm really concerned about this assumption that we're making that people in regular ed don't know what they're doing. And I think that we just happen to have the money right now. But I can think of so many people I know personally who I would much rather give the money to than I would to a special educator, because they know the kids, and they know the curriculum, and they know what kind of instructional alternatives are available.

JACK CAWLEY: Let me give you an example. I can take 30 kids in a room, give every one of those kids in that room a set of verbal problems, written verbal problems in arithmetic, have every kid in the room have a different number of problems and a different combination of problems, know the syntactical structure of every problem, the semantic complexity of every problem, the information processing requirements of every problem, and the arithmatical difficulties of every problem; and I can do that faster and have them corrected and the kid onto his work the next day based upon today's performance faster than you can give all those kids in the room the same ten problems on a given page, correct them and have them ready to go tomorrow. The thing is not hard. It's just that we haven't sat down to do those kinds of things.

What we have done, we as special ed people, is gone ahead in trying to develop tactics outside of the realm of content. I think that if secondary LD math is going to be dealt with, it has to be dealt with by both math people and special ed people. Not one or the other. There's no way. You know everyone of us only has a certain sample of that universal set of knowledge in his own mind anyway. And every kid becomes victimized then by the little bit we only know.

MERRILL SITKO: Virginia, I'd like to get back to what you said. The problem I have with regular educators, and I'm looking at them from the point of view of teacher training, is that they train teachers to the average in the classroom. Their whole approach is to what a normal child would do and I think the whole justification in special ed in the first place was that we would take care of the nonaverage or the deviant.

VIRGINIA BROWN: But I don't think good ones do, Merrill.

MERRILL SITKO: I'm talking about the norm that I see. I'm looking at the unique, so-called innovative regular education training programs that have gone out and won awards through AAUP, AACT. I have talked with people, trying to get them to develop similar sections for our special ed teachers, and they always talked about the normal rate.

VIRGINIA BROWN: Not the people I know. They say there is no difference. They say if you are doing a good job of teaching, it's a good job of teaching regardless. For example, they would go through process, process in a sense of activities, tasks, etc., rather than what I see happening. I am appalled when I see special education programs where these kids have one work sheet after another, and I would much prefer to put the kid in the hands of a good math teacher trained to the normal, whatever that is. I'll go with that notion of normal behavior and the task notion before I would with our abnormal kinds of constructs.

MERRILL SITKO: I guess what I'm saying is that I wouldn't generalize that regular education's the answer.

VIRGINIA BROWN: I'm saying, as Jack said, it can't be just one answer.

MERRILL SITKO: Then it's a matter of finding out what are the basic processes or strategies involved in the learning part of the learning disability and doing analysis of that and trying to teach to that within the content work.

ED SUMMERS: Someone said, if you give people in regular education money they'll know what to do with it, and they sure will. If you really look at what it would take to shape up the secondary education program right now, you're looking at increasing funding by a factor of about 5. What would that enable you to do? The current secondary program is based on assumptions that were built a hundred years ago as to what secondary education is all about. You teach kids in groups, you concentrate on academic content, you pass on the culture heritage of the nation, you prepare the intellectual population, and that's what you're up to. That whole thing has been changed to look much broader and to make other demands on the curriculum and the teacher, but we haven't changed the structure. You still have got 20 to 30 kids in the class. Do you realize that in this country with all of its money, 50 percent of the teachers at the secondary level are still teaching in majors that they were not prepared for in colleges and universities--50 percent of them.

NAOMI ZIGMOND: I think all the problems you're talking about in the regular school are what Don was talking about. While it's important for us to get involved in that, we can't get overwhelmed with those kinds of problems.

JANET LERNER: I think there is agreement even though some people disagree to the point that even more than in the elementary school, the content, the subject area has to play an important role in our instructional program; an even more important role than it does in the elementary school. Somehow, what we're doing, whatever we decide to call it, has to be built upon the content of the courses in some way. I think practically everybody said this in one way or another.

ED SUMMERS: Because the parents aren't going to have it any other way; when the parents look at the secondary school, they're looking for achievement.

JANET LERNER: Well, that's one reason, and the other reason is, as Jack pointed out, that the content provides the opportunity to do the kind of instructional programming that we're trying to do in isolation, perhaps at the elementary level.

DONALD DESHLER: I think that raises a critical issue on what is the relationship between the special class teacher and the content teacher at the secondary level, because the learning disability teacher cannot possibly be a master of all those areas?

LESTER MANN: I think he made an important point there, you're right, you literally can't do it. There is no way we can handle it with one teacher in the secondary level, unless it's basic skills again.

VIRGINIA BROWN: All right, but there's another question here in terms of the university training, but FTE's and job security has had a tremendously big part in this. The notion of interdisciplinary training is a dirty word. I don't know that the university training programs are really willing or able to really get into the interdisciplinary teacher training. It's still our people reading our literature, it's canibalistic; we're reading our own literature that we're generating without ever looking outside the field. I still come back to that point. There's more there.

NAOMI ZIGMOND: That comes to what it is that you expect the secondary teacher to be able to do? And I'm not sure that all those content areas that we say our people can't teach should be taught by them. That's what the secondary teachers are there to teach. And maybe we should be concentrating on training those people to teach the much more basic skills that secondary teachers don't teach.

VIRGINIA BROWN: It's just like having to teach those things through the content areas.

DON HAMMILL: All the case studies on which our field is based are classics. They're all middle class kids, they don't read at all, they've had the benefit of everything and they still don't read. You don't have to worry about cultural deprivation because Hinshelwood didn't work with any cultural deprivation. So, you've got the kind of kid in the high school or in the junior high school who doesn't have functional reading; he doesn't even come close to it. Yes, he is probably neurologically involved. Now if he would go into the school, because he's severely handicapped, he isn't going to get any better. There is not going to be any remedial reading, he has been through it. He has had six years of elementary school and now he goes into the secondary school. The question isn't is he going to get a resource room with skills or is he going to get a planned program in Palo Alto that will carry him through? Rather, the LD person should be responsible for getting him through that school, if he's capable, and of readjusting the school for his presence without concern for the rest of that mass that could profit by the same program that he's getting. If secondary schools want to eventually reorganize and provide programs for other kids, that's their problem. But I think we can identify these handicapped kids at the secondary level and put them through the program regardless of whether secondary programs ever recognize the realities with which they had to contend.

ED SUMMERS: In other words, you're willing to take responsibility for your own and shepherd only those kids through who are labeled LD?

DON HAMMILL: And by so doing, demonstrate a workable model of competence to the regular education teachers.

ED SUMMERS: Oh, come on now.

DON HAMMILL: This is what I'm saying--come on now! Everybody's sitting here saying they're willing to remake the secondary schools in their own image.

ED SUMMERS: And you're telling me that you've got the model?

DON HAMMILL: No, I just want to take care of my own kids. If it's a workable model, they will imitate it because it works. If it doesn't, who cares. My dedication is to the kids I'm in this field to serve. I'll serve them first, then I'll help general education.

ED SUMMERS: I think you're right Don, and if special education has something to offer to the secondary teacher, it isn't to come in and try to do the thing of the secondary teacher. It's to tell secondary teachers something a bit more about individualization and a bit more about structuring programs based on objectives. . . .

DON HAMMILL: You pick up any book in secondary ed, go into any secondary ed program, and right above the door, emblazened, is individual differences. . . .

VOICE: But they don't do it!

DON HAMMILL: Neither do we--that's the point! That's what they should be doing. When we do it first, then we will have the right to go in and talk to them.

ED SUMMERS: Do you know why secondary teachers don't individualize?

DON HAMMILL: Same reason we don't.

JANET LERNER: It's very hard to do.

ED SUMMERS: Do you know why good people are constantly leaving secondary education, even with the job market the way it is now? It's because there's that constant frustration of what you should be doing but not having the time and the resources and the environment and the understanding and the administrative support or the training to do a job.

DON HAMMILL: I never heard a teacher anywhere that didn't give that as the excuse for why they did not individualize. And Virginia Brown is the one who brought me to that point. I made a statement in front of a group of teachers in which I was really plain to them, I admit. I got there and I said, boy, you can just do it if you just cut down the size of your class.

ED SUMMERS: It's not just the number of kids in a class that makes any kind of a difference. It's what that enables you to do. You don't accomplish anything by just cutting sheer numbers.

LESTER MANN: That's been the whole argument for cutting the class size--to allow for individualization.

ED SUMMERS: How much training did they offer teachers? How much in-service training did they get?

LESTER MANN: Let me ask a point over there since we're moving quickly and time is moving ahead. Are we, in fact, going to keep on teaching these LD kids in the secondary level academics, or do we establish a terminal level of instruction and move ahead to some sort of alternatives and branch out from there? Do we keep on teaching them, do we keep on hammering that one more year hoping that somehow the kid will blossom and somehow learn to read or do arithmetic? Or do we give them alternate education, guide them through a bookless curriculum, and so on?

LEE WIEDERHOLT: I would go back to what we were talking about yesterday. We talk about ourselves as people who individualize instruction. And we also, when we talked about a definition, talked about a very heterogeneous group, so I don't think you can make the statement that we are going to give alternative curricula to the secondary adolescent students. Maybe not all students would benefit from an alternative curriculum, be it work study, be it this. So, I would say that you couldn't make a generalization about it. It probably entails some clinical judgment, some assessments, some teaching, and some observation of the child in a variety of situations as well as some discussion with the parents, the other teachers, the level of sophistication of the school, all this, and then make a rational decision based on all of this.

JACK CAWLEY: I think that one of the things I would do if I was starting a secondary school program is that I'd ask them what it is they want to learn.

VIRGINIA BROWN: That's what I meant yesterday when I said, you're not going to do anything to these kids if they don't want to learn.

LEE WIEDERHOLT: Well, that's what they do in some of the alternative schools.

DON HAMMILL: But these are not the handicapped we're talking about, once again.

LIBBY GOODMAN: But you know, not all of those secondary LD kids are hostile and aggressive and acting out, etc. There are a lot of docile kids and you still can tell them this is what we'd like you to do and here's your program and they just follow right along. At least we've got a lot of those kids in Montgomery County. We're not fighting them in the halls every time we turn around. They listen to authority pretty much. I'm all for giving them choices but I don't think it's a confrontation necessarily in every situation. Perhaps it is in urban areas but we don't find it where we are.

NAOMI ZIGMOND: But you don't have to wait for confrontation to ask somebody what they want to know.

LIBBY GOODMAN: No, I'm not saying that you should but I'm saying that we still have a great deal of authority and we can map out programs for these students. I do think you have to work with them and see what they want, which direction they want to follow. But I don't think that you've got to be afraid of them, always asking, what do you want? I don't see that kind of situation existing.

LEE WIEDERHOLT: Well, we all agree, I guess, that you consult the student as to what he wants.

LIBBY GOODMAN: And the parent, and not just as an afterthought.

JACK CAWLEY: Just as a point of information, do you know that the new core evaluation system from Massachusetts requires that every child over 18 sign the treatment program. He has to sign the sheets saying, "I think what you're doing for me makes sense and is a good program." Below that age, his parents have to sign. It's really a unique kind of thing, particularly when you realize that the form stipulates quarterly reports on attainment. Teachers have got to specify in their programs what they will get across to that kid and remeasure at the end of every quarter to show him and his parents that they've done it. You ought to buy that manual if you don't have it.

ED SUMMERS: Lester, I think we've slipped into a third area, one was definition, the second was technology, and now the third is the question of what it is we are going to try to teach. We've moved into a content area.

JANET LERNER: And that gets us into the managerial problems, working with the administration, and working with other classroom teachers. This is, I think, one of the hardest problems.

ED SUMMERS: I'm willing to leave that up to you people. Whatever you want to say the management program should be, you work with the kids, you work with that population. You're the experts.

LESTER MANN: Well, you know, actually the secondary schools have defined the kind of population they want us to consider LD--the kids they can't manage who are not otherwise diagnosed as handicapped and they don't really care about the cognitive variables. And this is what they refer to and talk about as secondary LD.

LIBBY GOODMAN: When we ask for a list of referrals for our secondary LD programs, typically we have the behavior management problems, kids who are tearing classes apart, and the slow learners.

JACK CAWLEY: I think it would be wrong of us to ask teachers for a list of pupils which constitute their problems, and then say you won't meet the problems. If that's their problem, I'd be loose enough to define LD as that.

LIBBY GOODMAN: Well, in Pennsylvania we are not allowed to establish that the youngster is handicapped. This must be done by the school and then the intermediate unit can step in and provide services. We have criteria--neurological screening of average mental ability process difficulties in the elementary level and this still carries over to the secondary level at the present time.

ED SUMMERS: It's not exactly, then, asking teachers to send problems to you, is what you're saying; you operate within a certain range of criteria. . . .

LIBBY GOODMAN: Well, then we try to pick the youngsters who we think are appropriate.

ED SUMMERS: How many people do you get that don't fit those criteria?

LIBBY GOODMAN: Most

ED SUMMERS: Most?

LESTER MANN: Because the secondary school often defines secondary LD as the kids they have problems with, not those that we can program for.

JANET LERNER: Your criteria that you are using now is what? 100 IQ?

LESTER MANN: No, we lowered it to 90, a minimum of 90 with a verbal test.

JACK CAWLEY: Is that a Johnson and Myklebust 90 IQ? There is that little thing in their book that describes a kid with a verbal IQ of 120 and a performance IQ of 60, who they worked with for six years and who didn't achieve anything as retarded. They use the term "pseudo learning disabilities."

MERRILL SITKO: Does your 90 include the standard error of measurement?

JANET LERNER: Do you use a discrepancy scale too?

LESTER MANN: Oh yes.

JANET LERNER: What is your discrepancy?

LIBBY GOODMAN: Generally we look for about two years or more.

JANET LERNER: At high school level?

LIBBY GOODMAN: Yes, in math or reading.

JANET LERNER: Math or reading?

LIBBY GOODMAN: Math or reading, two or more years.

JANET LERNER: Two or more years. Neurological screening?

LIBBY GOODMAN: Neurological screening. It is required.

JANET LERNER: Is this done by a private physician?

LIBBY GOODMAN: It has to be a medical person. We try to get the school districts to go to someone with neurological background and training, rather than just an M. D.

DON HAMMILL: How do you determine the discrepancy? Say you have an IQ of 90 or above, do you determine your discrepancy from CA or MA? Does it make a difference?

LIBBY GOODMAN: Oh, sure it does. A child with a lower IQ is not going to have the same expectancy as a child of a higher IQ. We take a look at the achievement levels compared to his ability level.

DON HAMMILL: So, it's conceivable to end up with a population of kids with high IQs who actually, in reading and arithmetic, are above the mean of the school?

LESTER MANN: Yes.

DON HAMMILL: That's ridiculous! It's happened elsewhere.

LESTER MANN: No. We're teasing you, Don. We have kids who are years below level in reading.

LIBBY GOODMAN: Take the situation where I have two kids, and I have only one place. I'm going to take the child with the greater achievement discrepancy.

DON HAMMILL: So, it's really from CA that you're taking a two year discrepancy.

LIBBY GOODMAN: Typically, in your secondary classes, you're dealing with a lot more than that.

JANET LERNER: If these are within child variables, then you're saying they are not normally distributed in the populace?

LESTER MANN: I don't think that learning disabilities are normally distributed.

DON HAMMILL: And I think that all this talk about LD and it really not being in the kid, is playing to the dominant philosophy that is permeating the schools right now.

JANET LERNER: If it's not normally distributed, which segment is it skewed to?

NAOMI ZIGMOND: Income

MERRILL SITKO: That's getting back to the term "exogenous" and "endogenous."

LESTER MANN: No, I don't think LD is exogenous necessarily.

MERRILL SITKO: What are your criteria then?

DON HAMMILL: Strauss didn't set up his criteria for exogenous or endogenous.

LESTER MANN: Did you ever work with classical dyslexic kids? I had a few of them. If you want to go that route, you can pretty well identify "classical" kids so that all people will agree but except for these, there is margin for disagreement.

JANET LERNER: But the children that you select are not those classical cases.

LESTER MANN: There are not too many classical cases--that way they are classical.

LIBBY GOODMAN: You wouldn't even find too many of these in the high schools. They'd be in other kinds of programs. They would go to private schools or special schools.

JANET LERNER: I've counted four criteria there.

LESTER MANN: I wasn't being facetious by the way. Pennsylvania has determined that the slower kids, the 80 or 90's who are not making it are not within LD--they are slow normal learners.

JANET LERNER: In spite of the fact that their IQ may be dependent upon their environment?

LESTER MANN: Right. It's simply that the state has said that the kids who are dull and slow and failing in school, and in a certain IQ range of 80 to

90 or so, are not a special ed problem. This is, of course, probably the largest group of unmanageables in the school.

JANET LERNER: There is always the danger that the tests that you use could be considered culturally biased.

LESTER MANN: Really?

DON HAMMILL: Why in the world would you give a test that is culturally unbiased?

JANET LERNER: There are states where this has interferred with the identification process.

LEE WIEDERHOLT: There was a survey done at the University of Arizona last year on federally funded LD programs and we found that a predominant number of the kids in those programs had IQ's in the 80 to 90 range.

LESTER MANN: I think we have sort of deteriorated into general disagreement at this point so to close up the conference, Donald has devised a formula.

DON HAMMILL: Well, if you figure out these discrete categories of handicap, you end up with about 10 percent LD, 7 percent MR, 5 percent ED, 2 percent cerebral palsy, or halt, and 2 percent blind and deaf. It adds up to, just going on a rather conservative figure, about one out of every four kids in school. That's using about 10 percent for LD. Now, if we really want to take the rest, we'll easily have half the kids in school.

LESTER MANN: Well, thank you all very, very much--I'm not sure where we ended up. But thank you!

CURRICULUM AND MATERIALS FOR SECONDARY LEVEL LEARNING DISABILITIES PROGRAMS: WHAT WE HAVE AND WHAT WE NEED

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Models of learning disabilities programs that are appropriate to elementary age students and to elementary school administrations are not readily superimposable onto secondary structures. This is true to a somewhat lesser extent at the middle school or junior high level as well. No consideration of methods and materials for students labeled as learning disabled can be made independently of a recognition of the developmental differences among program levels.

A number of factors can be assumed to make secondary LD programs different and difficult. These factors influence goals as well as curriculum and materials. Among the critical differentiating characteristics are:

A. Student-Related Characteristics

1. The increase in the student's behavioral independence suggests that he will not be as amenable to doing what is asked or required; he is unlikely to appreciate being identified with any special program or teacher; less parental pressure can be brought to bear on his behavior; and he should participate heavily in the design of his own program.

2. The increase in the student's mobility permits a broader range of application possibilities for skills to be learned. It may also mean that there is a greater likelihood that absenteeism may be high, playing havoc with programming continuity. Non-school attractions may also supersede school interests.

3. The increase in unsupervised time available to the student may be boon or bane, depending of course, upon how it is used. Getting places "on time" may also be a problem for some students.

4. There is usually increased pressure on the student to make occupational and life decisions at a time when he is least prepared to do so.

5. The complexity of social pressures and relationships demanded by society during adolescence is likely to be compounded for the LD student. Learning about long and short vowel sounds may not be one of his highest priorities.

6. There is likely to be a lessening of parental involvement in school and in daily living; yet there is also increased parental concern for post-school planning.

7. The accumulation of life experiences serves to make each student even more unique as he becomes older. Programs must be even more personalized around a variety of "total person" characteristics. In the special case of the student labeled as learning disabled, any history of failure is likely to be more ingrained, making the turnabout or the accomodation more difficult.

8. Where emotional and "behavioral" problems accompany the learning problem, it may be necessary to concentrate on this area first. At the elementary age level a steady diet of academic success may resolve the "chicken or egg?" question. It may not be so simple at the secondary level because of the strength and generalization of emotional responses.

B. School-Related Characteristics

1. Credit and grade requirements must often be negotiated for the individual student. Teachers must understand the influence of "institutions" such as the Carnegie unit.

2. Scheduling processes may require the teacher to hand-schedule, at the appropriate time, for each student.

3. The larger numbers of students in secondary settings makes it more difficult to keep track of them. Students are also exposed to competing influences and time-use possibilities. Also, with such numbers, it is usually more difficult for school personnel to consider individual needs.

4. With larger numbers of staff members, a student must learn a variety of response patterns to the many kinds of adults. The LD teacher's communication problems are increased accordingly. Even further, public relations activities take a great deal of the LD teacher's time and efforts.

5. The larger size of secondary school plants makes mobility and the meeting of scheduling demands difficult for some students.

6. The heterogeneity of value systems in large, comprehensive high schools suggests both greater opportunity for broadening the outlook, and the need for attention to "curriculum" elements such as values clarification and moral education.

7. The general shift from student centered to content centered programs means that certain prerequisites and standards are required. This is

true both in college bound and in non college bound coursework. Home ec, various shops, and business ed departments do not want to be considered as "dumping grounds."

8. There are usually limited opportunities for alternate educational subsystems within the secondary system.

9. Limited program options exist within available school arrangements. For students with exceptional abilities the options are increased. For students with exceptional disabilities the options are decreased. Rewards tend to be open to achievers.

10. The competitive nature of some areas, such as PE programs, makes them impossible for the student who finds such competition difficult. In the specific area of PE many programs are moving toward education for lifetime sports such as boating, golfing, or skiing.

11. The organizational options within any one secondary school are often limited by current philosophy and community interests. Grade levels still tend to be influential in organizational and scheduling patterns.

12. Recognition of the shortness of the time remaining for the student at the high school level may create an attitude of "why bother?" or else, "let's get going on a crash program!" The LD teacher may need to stimulate, or to brake an intended course of action.

13. The departmental administrative organization of the high school, with the department chairman concept so foreign to most elementary programs, may make learning disabilities teachers literally outsiders with no departmental home or protection. This political reality means that the secondary LD teacher must spend a great deal of time raveling out the local instructional implications and possibilities of the departmental structure.

In addition to the characteristics that differentiate elementary and secondary programs, several system variables are of interest in determining curriculum and materials needs. School districts that plan for continuation of services as students move from one level to another realize that for many students, continuing program modifications are necessary to school success or survival. These districts are likely to articulate services and curriculum throughout the elementary-middle-secondary complexes, with preschool and post-secondary programs integrated within this framework. Longitudinal planning and monitoring is possible under these circumstances. In other arrangements the secondary program may operate independently of services and curriculum at other levels, inhibiting service and curriculum continuity.

The nature of the student selected as learning disabled will also influence curriculum and materials. If the population consists of "six-hour LD" students who experience or present relatively few problems (attributable to learning style) outside of school, then total system interventions are required to help the school system become responsive to the realities of its student characteristics. Major curricular and organizational changes are called for in these situations. In addition, the "real" LD student whose learning problems may also manifest themselves in non-school situations will likely need programming that is more comprehensive than academic considerations alone can provide.

Personnel who are beginning to plan for programs in learning disabilities should not let their decisions be influenced initially by what is available in curriculum, methods, materials, or tests. Instead, the program should be based upon as honest an appraisal as possible of the community, and of the scope and quality of the existing secondary program, school philosophy, and a description of what constitutes a favorable educational milieu for students. The selection or development of curricula will follow from intention.

The development of anything like "A Curriculum for the Learning Disabled Secondary Age Student" would be unfortunate indeed because it would mean that yet another set scope and sequence would have to be "gone through." While such an approach may have some merit at the elementary level, it is impossible at the secondary.

The remainder of this paper reflects the philosophy of a need for careful local planning after a consideration of the differentiating factors of secondary students, their teachers, and their schools.

There is so much information available in secondary as well as in special education that any comprehensive listing of curricula, materials, and techniques would literally be impossible. Instead, some consideration is given to the major areas of concern to the student labeled as learning disabled, and to secondary LD teachers. Within each area there are usually some exemplars to help initiate a search for additional resources.

Some of the suggestions may seem very basic to the experienced practitioner, but often beginners are not yet familiar with basic procedures for finding out about areas new to them, It is also possible that the experienced practitioner may happen upon new areas to explore, or old areas neglected in the press of other concerns. In either case, it is the responsibility of the professional person to spend time exploring resources in order to develop a well rounded program in learning disabilities.

CURRICULUM AND METHODOLOGY IN THE SECONDARY SCHOOL

Many books and periodicals deal with curriculum and methodology for high school teaching. It is important for the LD teacher to become familiar with these resources for several reasons. First of all, the LD teacher should know what secondary teachers are being taught so that he or she might become familiar with the terminology and purposes of secondary curricula and methods. Acquaintance with a wide variety of procedures will also give the LD teacher ideas of instructional alternatives of possible value for the mainstream teacher who wants or needs to modify instructional techniques.

Another value of knowing the variations in secondary methods and curricula is that the LD teacher can help the student understand how a particular procedure, e.g., panel discussion, could be structured and evaluated. The student might also use the knowledge of alternative presentation modes in presenting his contributions to the class, the group, or to the teacher of the content area.

Analysis of method would also be useful diagnostically to help locate trouble spots with student and/or method.

Further, the LD teacher as well as the mainstream teacher will find the many suggestions, charts, evaluation forms, etc., valuable in designing instruction specifically for adolescent individuals or groups. Seldom does the secondary age student appreciate being taught by elementary methods by an elementary teacher.

Many secondary classrooms remain subject matter, knowledge acquisition oriented, but increasing emphasis is being placed on the development of a repertoire of planning considerations, motivational ideas, instructional techniques, and assessment devices. The use of a wide range and variety of methodologies is related to increased attention to providing for individual differences, and to promoting higher order cognitive skills such as analysis, synthesis, and evaluation.

Four examples of seconda[illegible] education texts are cited below. A vist to the nearby public or university library, or to secondary education departments of local universities will provide additional resources.

Bent and Unruh (1969) is primarily an overview curriculum book designed to show the complexities of secondary curriculum development and administration. Special interest areas such as social science or mathematics, the co-curricular program, and vocational education are all described briefly. The newer concerns for lifetime living, e.g., consumer education, or ecology, are not addressed here. These more contemporary themes are usually incorporated into existing departments or areas. The age of this book shows both how little has changed in many high schools, and yet, paradoxically, how rapidly "future thinking" is occurring at the leadership levels and locations in secondary education.

Hoover (1973), Kim and Kellough (1974), and Samalonis (1970), all deal with the how-to's of instructional planning and evaluation. Many worksheets and guides are found in each to help the teacher check out his own skills and to learn new ones. A great deal of emphasis is also placed upon the philosophy and values of the teacher.

In addition to secondary methods texts, other kinds of books assist in learning a variety of methodologies to use in secondary education. Joyce and Weil (1972) provide models of instruction. The applied premises of their book suggest that matches can be made between teaching styles and learning styles, and that flexibility of teaching style is helpful in creating alternatives to success for a variety of learners.

Games for growth (Gordon, 1970) is an example of a specialty book that is an excellent introduction to the design, use, and evaluation of laboratory learning experiences, or games, or simulations.

Examination of the books above will yield over fifty techniques or considerations. Among them are:

1. The Developmental Lesson
2. Co-Curricular Activities
3. Community Resources
4. Test Taking
5. Human Relations
6. Evaluation of Instruction
7. Working with Individual Differences
8. Preparation of Self-Instructional Packets
9. Committee Activity
10. Questioning
11. Inquiry
12. Textbook Teaching
13. Games and Simulations
14. Microlab Communication
15. Instructional Aids
16. Constructive Discipline
17. Individualizing Instruction
18. Review Methods
19. Film and Television Analysis
20. The Sociodrama Method
21. Semi-Independent Study
22. Sociometric Techniques
23. Brainstorming
24. Concept Attainment
25. Encouraging Creativity
26. The Skill Lesson
27. The Discovery Lesson
28. Independence Skills
29. Study Skills
30. The Telling Lesson
31. Creating and Working with Instructional Materials
32. Instructional Objectives
33. Criteria for Teaching Methods
34. Motivational Strategies
35. The Lecture
36. Discussion
37. Assignment Teaching
38. The Demonstration
39. Student Evaluation of Teachers
40. Student Participation in Mutual Evaluation
41. The Case Study Method
42. Management and Housekeeping
43. Research Methods
44. Group Processes
45. Debate
46. Small Group Techniques
47. Developing Values
48. Testing
49. Class Grouping
50. Advance Organizers

Examples, values, limitations, planning sheets, and evaluation formats are usually included for each technique. The bibliographies that accompany the features will also provide further information. In addition, various journals can be monitored to find elaborations and applications of these methodologies. Emerging techniques are also usually found first in journals.

JOURNALS TO MONITOR FOR INFORMATION AND IDEAS

Not every journal cited below deals with secondary instruction, and none is directly related to learning disabilities. Nevertheless, each contains occasional articles designed either to help understand issues, problems, trends, and alternatives in secondary education, or else to provide ideas for creative, motivational instruction.

Certain features of many of the journals should be noted. They usually contain media review, i.e., books, films, filmstrips, and kits. Some highlight ERIC document resources reviews. Advertisements are contained in most journals, and although these must be carefully evaluated, the ads do provide information about current products related to reader interest. Idea exchanges may serve to enrich teaching practices. Research may be reported, and new programs described. Teachers or planners of secondary LD programs should check the content of each publication noted below.

American Vocational Journal (secondary)

The Arithmetic Teacher (elementary, but with ideas for older students)

Audiovisual Instruction

Arts and Activities

The College Board Review (trends in secondary; college transition)

Compact (trends in school law, finance, etc.)

Education (innovative programs and practices at all levels)

Educational Leadership (contemporary programs, issues, problems)

Elementary English (ideas applicable for older students)

Educational Technology (themed issues such as "Individualized Ed.")

The Gifted Child Quarterly (ideas and trends)

The High School Journal (current programs, issues, and trends)

Improving College and University Teaching (many ideas useful for the secondary teacher as well)

Journal of Applied Behavior Analysis (all methodology)

The Journal of Negro Education (issues incident to education of black people)

Journal of Reading (secondary, college, and adult level)

Journal of Reading Behavior (all research; all levels)

Journal of Research in Mathematics

Learning: The Magazine for Creative Teaching (numerous ideas)

The Mathematics Student (grades 7-12)

Mathematics Teacher (secondary)

National Association of Secondary Principals: Bulletin (influences)

North Central Association Quarterly (current trends in secondary ed.)

New Outlook for the Blind (many ideas relevant to the problems of the severe LD student)

Phi Delta Kappan (issues, trends, new programs)

Plays: The Drama Magazine for Young People (new sources each month)

Reading Improvement (innovative ideas for teaching)

Reading Research Quarterly (research in-depth studies)

The Reading Teacher (elementary, but with useful ideas for secondary)

The School Counselor (ideas, issues, trends)

School Science and Mathematics (classroom and school applications)

Science Curriculum Improvement Study (SCIS) Newsletter (practical)

The Science Teacher (classroom ideas of contemporary relevance)

Small Group Behavior (Therapy and treatment)

Social Education (social studies ideas)

Theory Into Practice (innovative practices)

Urban Education (politics; motivation ideas)

RESOURCES FROM LOCAL SCHOOL DISTRICTS

Many school districts develop useful materials designed to promote instructional improvement. Especially where there are departments of secondary education, curriculum and instruction, or research and development, many of their products are good for preservice or inservice education. Special education departments may also produce materials of value, but usually concentrate on the elementary level. One example of a locally developed product is the learning packet, Readability: Matching the reader with print (Nettleton and Sapone, no date). It contains a variety of considerations of special use to the secondary teacher.

While instructional products from local school districts do not specifically deal with the child labeled as learning disabled, they are usually concerned with frequently occurring instructional problems.

PROFESSIONAL ASSOCIATIONS AND ORGANIZATIONS

Professional associations usually offer a variety of publications, workshops, and information services to members and to nonmembers as well. Most organizations will send brochures of publications and services. Local councils of many of the professional associations are able to provide locally relevant information or services.

Special education

A sixteen page annotated guide to agencies and organizations concerned with exceptional children is listed in the April, 1969 issue of Exceptional Children (pp. 647-662). The annotations describe each organization in terms of purpose, membership requirements, publications, and sponsorship of conferences. The agencies and organizations are also cross-listed according to service function such as consultation, direct services, etc.

Associations concerned with the improvement of secondary education

Professional associations usually provide the available expertise in nearly all phases of instruction--content, methodology, evaluation of materials, evaluation of learning, and instructional management.

International Reading Association
800 Barksdale Road
Newark, Delaware 19711

National Association of Secondary School Principals
1904 Association Drive
Reston, Virginia 22091

National Council for the Social Studies
1201 Sixteenth Street, N. W.
Washington, D. C. 20036

National Council of Teachers of English
111 Kenyon Road
Urbana, Illinois 61801

National Council of Teachers of Mathematics
1906 Association Drive
Reston, Virginia 22091

National Science Teachers' Association
1742 Connecticut Ave., N. W.
Washington, D. C. 20009

North Central Association of Colleges and Secondary Schools
5454 South Shore Drive
Chicago, Illinois 60615

Parent education resources

Parents of students labeled as learning disabled will frequently need information, support, or specific teaching. Most parent related resources are geared to the elementary level, although some techniques are adaptable to the problems presented or experienced in the secondary age student/parent relationship.

The Association for Children with Learning Disabilities (ACLD) provides information, conferences, and personal contacts. State and local chapters will be able to provide current information about available media, person, and agency resources.

Resources adaptable for parent education or training

Brownstone, J. E. & Dye, C. J. *Communication workshop for parents of adolescents*. (Leader's Guide and Parent's Review). Champaign, Ill.: Research Press, 1973

Madsen, C. K. & Madsen, C. H., Jr. *Parents/children/discipline: A positive approach*. Boston: Allyn and Bacon, Inc.: 1972.

Patterson, G. & Gullion, M. E. *Living with children: New methods for parents and teachers*. Champaign, Ill.: Research Press, 1968. (also in Spanish)

Tharp, R. G. & Wetzel, R. J. *Behavior modification in the natural environment*. New York: Academic Press, 1969.

CLINICAL TECHNIQUES OF VALUE IN SECONDARY EDUCATION

Description of clinical techniques for students labeled as learning disabled are primarily targeted to the elementary age child. In some instances, however, the methodology is equally useful for older students. The following references are to techniques that are intended for one-to-one use in working with the more instructionally resistant learning problems. (The last two references require some adaptation.)

Bryant, N. D. *Trial remediation: Learning sight words*. No source given. 1971. See author for copies

Fernald, G. *Remedial techniques in basic school subjects*. New York: McGraw-Hill, 1943. reading, spelling, math, and handwriting

Gillingham, A. & Stillman, B. W. Remedial training for children with specific disability in reading, spelling, and penmanship. Cambridge, Mass.: Educators Publishing Service, Inc., 1965.

Neisworth, J. T. & Smith, R. M. Modifying retarded behavior. Boston: Houghton Mifflin Co. 1973. General behavior modification (criteria for implementation)

Stauffer, Russell G. The Language-experience approach to the teaching of reading. New York: Harper & Row, 1970.

BASIC SKILLS

If the student is severely disabled in basic skills it may be necessary to apply clinical methodology on a one-to-one basis. For the most part, however, the learning disabilities teacher will work to develop basic skills through content area requirements. Especially for secondary students, needs should be derived from an analysis of application problems rather than from standardized tests.

An assumption of this paper is that secondary education is substantively different from elementary education. The usual conceptualizations of what constitutes "basic skills" must change. Because of the very different orientation to teaching/learning that is needed by the LD teacher in the secondary school, several comments should be made.

Reading

Standardized tests such as those found in Reading tests for the secondary grades (Blanton, Farr, and Tuinman, 1972) are useful in administration and research, but are not of value for instructional purposes. Less formal and more relevant assessment ideas must be used.

The secondary teacher concerned with basic reading ability should be very careful about saying that a student cannot read because of test or school related behaviors. It may instead be a question of discovering what the student does read, e.g., movie, love, dragster, or cycle magazines, "pornography" (whatever that is), fashions, comics, or record jackets.

Evaluations geared to syntactic and semantic considerations are likely to be of greater value than are traditional kinds of "diagnostic" splinter skills tests. An example of a more relevant kind of formal reading assessment is found in the Reading miscue inventory (Goodman and Burke, 1972). Miscue analysis refers basically to a process by which the reader's deviations from the printed text are analyzed in terms of their interference with or facilitation of meaning. The methodology and concepts of miscue analysis are especially useful in determining the difficulty of the concepts in each content area for the individual student. The inventory need not be used "as is" unless formal assessment is required.

Newer approaches to secondary reading are much like the miscue notion in that they give greater emphasis to obtaining meaning, to conceptual and reasoning skills, than to "knowledge of component reading skills." If the older "remedial reading lab" approach is desired, then an excellent resource is Brogden's book on the non-committed learner (1970).

Many content area professional associations are concerned with reading, and a monitoring of their journals will yield articles such as, "How can we help kids read science textbooks?" (Gage, 1974). Several references to secondary reading texts are annotated below.

Aukerman, R. C. Reading in the secondary school classroom. New York: McGraw-Hill, 1972.

Shepherd, D. L. Comprehensive high school reading methods. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

Both of these authors show examples of modified pages from content area textbooks so that the teacher might use the same text-modification ideas in textual materials used locally. There is also attention to critical features the teacher should account for in the instructional practices related to the concepts and applications referred to in the student texts.

Burmeister, L. E. Reading strategies for secondary school teachers. Reading, Mass.: Addison-Wesley, 1974.

Herber, H. L. Teaching reading in content areas. Englewood Cliffs, N. J.: Prentice-Hall, 1970.

Each of these books is organized along instructional and cognitive level considerations rather than by content areas. Applications of the concepts and techniques each advocates are imbedded within the entire text.

Herber focuses upon "reasoning" and provides numerous and varied examples of written exercises designed to show how the organization and structure of such exercises can promote more thoughtful responses about the content area. Samples of formal reading and reasoning guides are also provided.

Burmeister's chapters deal with topics such as the teaching of concepts through vocabulary, interpreting and applying ideas, and analyzing, synthesizing, and evaluating ideas. Abundant examples of applications are provided throughout her text selections.

Handwriting

It may be necessary to spend a great deal of time motivating students to "write better." Sometimes graphoanalysis or calligraphy offers an entree to the older student.

If time left in school is short, it might be necessary to teach the student to type. Consideration should also be given to the selection of one writing system well done. Bloc-caps is especially relevant as a style of choice in today's computerized society.

The secondary teacher should also understand that writing style may be an important personality attribute to the older student. Legibility rather than "school-style" should be the primary criterion of acceptability.

If a text is needed, adaptations may be made of the ideas in Handwriting with write and see (Skinner and Krakower, 1968). It is also an excellent teacher education text.

Spelling

Spelling needs should be determined from the spelling demands of the content areas. Lists are of little value, even the basic lists. Dolch-like words should be taught in context in dictation or practice. For example, "on" goes with phrases like "on and on," "Right on!" "on account of," etc.

Older students who are inveterately poor spellers should learn how to obtain the assistance of a "spelling checker," and then make the corrections themselves.

Mathematics

Rarely does a drill approach to basic math skills interest the older student. Nor by this time are drill papers appropriate--simply because they don't work. In addition, learning disabilities clinicians are unanimous in their dismay at rote learning in math.

If "computation" is of great concern, then a pocket calculator should be used. Many popular books, e.g., Mullish (1973), describe the operations and uses of calculators. Most contemporary mathematics programs also teach calculator use. Ashlock's book on "error patterns in computation" (1972) may be used by many students themselves to discover problem areas. This semi-programmed approach to math computation is a rarity in its emphasis upon process before speed and accuracy.

One of the most useful references for objectives, materials, and techniques that stress an activity approach to learning is found in the Laycock and Watson source book, The fabric of mathematics (1971). Each activity, material, technique, and reference is level-coded into five difficulty levels that roughly correspond to the degree that language behavior and sophistication (including reading) is involved.

ARRANGEMENTS FOR COMPENSATORY SERVICES

In the case of students whose reading problems are so severe that reading is not a medium of choice for everyday living, several possibilities must be arranged. A library or libraries someplace in the region are designated as repositories for the Talking Books program usually available to the blind and partially sighted. Certain forms must be filled out so that the student may take advantage of this service. The LD teacher may check the local library headquarters for further information.

Great emphasis must be placed on how to get information from non-textual sources. Visual literacy is not limited to skill with words.

Driver's license tests may in some states be read to the examinee if the teacher provides corroboration of need. The state or local licensing agency can tell about local practice.

Tests may need to be read to the student through special arrangement. The student must be taught how to study and to respond differentially to various kinds of oral tests in much the same way as for written tests.

The student who needs reading material recorded for daily work will benefit from the teacher or teacher-parent-community organization of recording services. The material may require the LD teacher to insert explanations along the way, or to accompany the recording with graphs, charts, maps, etc. Audio tapes may be kept with books for use by others.

The teacher should not overlook opportunities to develop concepts through extensive use of films, filmstrips, and picture materials. Not all information is contained in written material.

If the idea of compensatory services is new to the community, the LD teacher must do extensive public education work to make these alternatives not only acceptable, but also desirable.

HOW TO STUDY AND TAKE TESTS

One of the major academic activities at the secondary level is independent study. Teachers usually assume that students have been taught to study at any level below the one in which the student is presently enrolled.

Sometimes English departments offer study skills labs as a part of their programs. Even so, the learning disabilities program may need additional personalized assistance.

Colleges and universities also will likely have study skills labs with various kits and media resources. Many college bookstores have a wide selection of books and pamphlets dealing with the how-to's of study and test-taking. These may need to be taped and or discussed with students individually. Study aids for specific subjects are also available at university bookstores.

Books on secondary education methodology and curriculum will treat independent study skills. Also, books on reading in the content areas or at the secondary level will have sections on study skills, especially SQ3R.

Information location skills may be taught by librarians or by the LD teacher. Many libraries issue publications dealing with special needs such as book review sources. Again, university libraries may provide a wider range of resources in this regard.

The use of public libraries and reference sections will need to be taught on site and with purpose--not as an exercise. The student may also need to learn to ask for help. Behavior rehearsal or role playing are often good techniques to use for "asking for help" training.

The LD teacher will also have to spend time teaching some students how to "operate" in a variety of classes with a wide range of teacher behaviors. There are ethical problems in teaching students to modify the behavior of teachers, but for students in LD classes who may not learn this "normal" behavior incidentally, thought should be given to the question. The student who can figure out what pleases the teacher and doesn't choose to do so is in a very different position from the student who doesn't quite know what is happening. The LD teacher should be familiar with the range of competencies and expectations of the content area teachers to help the student understand differences.

Several representative publications are annotated below. They will all need modification for presentation or work with the student, and are not suitable for independent use.

Christ, F. L. Studying a textbook. Chicago: SRA, 1966.

The exercises of this SQ3R approach to textbook study will prove individually useful. "Going through" the exercises will prove to be boring for most people.

Millman, J. & Paul, W. How to take tests. New York: McGraw-Hill, 1969.

This paperback is one of the best books available in terms of comprehensiveness, clarity of examples, and emphasis on preparation or study skills. Criteria considered by the instructor in developing various kinds of exams are provided. The material is readily adaptable to secondary education. Emphasis is also placed upon intellectual, emotional, and physical preparation as well as the use of the student's time.

Morgan, C. T. & Deese, J. How to study (2nd ed.). New York: McGraw-Hill, 1969.

Designed for college, it is possible to use much of the methodology at nearly any age. Self-evaluation, use of time, getting help, and living outside of school are topics of special interest. Traditional chapters on taking exams, reading, and writing papers are supplemented with special tips for major content areas. Throughout the book are ideas for analyzing the classroom and "psyching out" the teacher's idiosyncratic behavior.

Robinson, F. Effective study. New York: Harper, 1971

Contains detailed analysis and review of the SQ3R method.

Smith, S. W., Shores, L.,& Brittain, R. Best methods of study (4th ed.). New York: Barnes & Noble, 1970.

Test preparation, the use of resources, and personal management of study are presented. The range of subjects to be studied is wide, including vocational subjects and fine arts. The problem of understanding the teacher expectations is included briefly.

Todd, A. Finding facts fast: How to find out what you want to know immediately. New York: William Morrow & Co., Inc., 1972.

This concise reference guide to information location resources is useful both to teacher and student.

IN-SERVICE EDUCATION OF CONTENT AREA TEACHERS

At times the LD teacher may be asked to conduct or help plan in-service education for secondary level content area teachers. Data from the problems students present or experience in a particular area can be used in developing "preventative" programs with the cooperation of the regular staff. Teacher requests also form the basis of a "needs assessment." Recently, for example, the National Council of Teachers of Mathematics reported on views of secondary math teachers in regard to in-service education (1975). The perceived needs were predominantly method, materials, and motivation oriented. In addition, or perhaps as a part of the 3 M's, individual differences, slow learners, gifted learners, etc., were also high on their priority list. Most content teachers know their fields fairly well. They tend not to be well prepared in methodology.

The LD teacher who is asked to work on in-service may also do so indirectly as a part of the job. Assignment modification and classroom work with mainstream teachers is a type of in-service when the mainstream teacher modifies practices as a result of the intervention of the LD teacher. Often it is for the purpose of providing indirect in-service that many school administrators are interested in developing LD programs in their schools.

Even the LD teacher who has a content specialty may suffer from isolation and resentment because of small student load. The public relations aspect of his program both with faculty and students will depend to a large extent upon his knowledge of innovative secondary methodologies.

The in-service aspect of the LD teacher's role is relevant to curriculum and materials for the student in that it constitutes preventive teaching so that frequently occurring problems can be reduced and the LD teacher will (hypothetically) have gained time to work with the more difficult cases.

Assistance with learning specific instructional techniques is available through processes such as microteaching (e.g., Allen and Ryan, 1969), discussion film series such as the "Critical Moments in Teaching" series (Gliessman, 1969), and self-instructional packets such as those of Individualized teacher preparation: Questioning, developed through the Intermediate Science Curriculum Study (1972).

RESOURCES FROM OTHER AREAS OF EXCEPTIONALITY

Areas of exceptionality other than learning disabilities offer information, publications, and services of potential value in a learning disabilities program. Inquiries to the Council for Exceptional Children Information Center will produce referral to the appropriate professional organization. Brochures obtainable from organizations referred to in a previous section will usually list publications and their cost (some free).

Deaf and hearing impaired

Because of the centrality of language in the problems of many learning disorders, some of the techniques and materials of value in working with the deaf and the hearing impaired are also useful in learning disabilities. One example of a useful product is The language of directions: A programmed workbook (Rush, 1970) in which commonly used "school work" directions are taught.

Mental retardation

Much of the recent work in mental retardation has been related to curriculum, methodology, and materials development. Work-study and vocational education materials are usually developed first in mental retardation.

One example of curriculum development activity that is directly applicable to learning disabilities at the secondary level in terms of methodology, and to some extent content, is the continuing curriculum project of Brown and his colleagues. Their validated techniques are contained in the series, Toward the development of an empirically based school program for trainable mentally retarded and severely emotionally disturbed students (1971 to date).

A consortium of universities, public schools, and institutions has been established recently to provide coordinated curriculum development and teacher training activities. Current information is available from the USOE Bureau for Education of the Handicapped.

Behavior disorders and personal problems

Students who experience or present severe behavior disorders do not belong in most learning disabilities programs. It is not unusual, however, for students labeled as learning disabled to have concomitant behavior or personal problems. The secondary LD teacher will need to have a natural or acquired repertoire of techniques to work with these problems. It perhaps cannot be emphasized too strongly that the learning disabilities teacher at the secondary level should have had experience with adolescents in order to become familiar with developmental characteristics of this age group. The teacher, then, is not as likely to view normally fluctuating behaviors as permanent problem behaviors.

The techniques of behavior modification, individual counseling, group counseling, values clarification, and moral education may prove helpful in working with students who are having more personally or behaviorally related problems.

Behavior modification

By the time the student is in a secondary education program, the use of behavior modification should certainly involve the student in planning or managing his own program. Some teachers teach the students basic principles of behavior modification through resources such as:

Homme, L. How to use contingency contracting in the classroom. Champaign, Ill.: Research Press, 1969.

Malott, R. W. Contingency management in education and other equally exciting places OR I've got blisters on my soul and other equally exciting places (2nd ed.). Kalamazoo: Behaviordelia, 1972.

Thoresen, C. & Mahoney, M. J. Behavioral self-control. New York: Holt, Rinehart, and Winston, 1974.

Watson, D. L. & Tharp, R. G. Self-directed behavior: Self-modification for personal adjustment. Monterey, Calif.: Brooks/Cole Publishing Co., 1972.

Values clarification

A variety of books dealing with techniques that may lead the student to clarify his own values and to understand better the values of others are available to the secondary LD teacher. Much of the work of the teacher lies with the values conflict among student, school, and society. The techniques are especially useful in humanities and bioethics as well as in LD. It should be kept in mind that values clarification is a process, and carries no judgment or responsibility concerning outcomes.

Raths, L. E., Harmin, M., & Simon, S. B. Values and teaching: Working with values in the classroom. Columbus, Ohio: Charles E. Merrill Publishing Co., 1966.

Simon, S. B., Howe, L. W., & Kirshenbaum, H. Values clarification: A handbook of practical strategies for teachers and students. New York: Hart Publishing Co., 1972.

Moral education

The development of evaluative criteria with which to judge values is a controversial aspect of education even though it is mandated in some states such as California. Exploring moral and ethical standards and positions from the extreme cultural relativity on the one hand to the extreme personal relativity on the other is primarily the business of moral education. This "subject" is important to helping the teenage student understand him or herself in a rapidly changing society.

Wilson, J. Practical methods of moral education. London: Heinemann Educational, 1972.

Hoffman, M. L. Moral judgment. In P. H. Mussen (Ed.) Carmichael's manual of child psychology, Vol. II New York: John Wiley, 1970. pp. 261-360.

Transactional analysis

Transactional analysis (TA) is a currently popular technique for analyzing personal behavior style. Two of the references cited below are basic books (Berne and Harris); the third is an example of a group exercise plan.

Berne, E. Games people play: The psychology of human relationships. New York: Gove Press, 1964.

Harris, T. I'm ok--you're ok: A practical guide to transactional analysis. New York: Harper and Row, 1969.

Jongeward, D. & James, M. Winning with people: Group exercises in transactional analysis. Reading, Mass.: Addison-Wesley Publishing Co., 1973.

Counseling

The learning disabilities teacher in the secondary school is not expected to become a counselor for severely involved students. Yet, because of contact opportunities and confidence when it is there, the LD teacher should have some idea of how to help explore behavioral and personal problems.

Brammer, L. M. The helping relationship: Process and skills. Englewood Cliffs, N. J.: Prentice-Hall, 1973.

Krumboltz, J. D. & Thoresen, C. B. Behavioral counseling: Cases and techniques. New York: Holt, Rinehart, and Winston, Inc., 1969.

Rose, S. Treating children in groups. San Francisco: Jossey-Bass, 1972.

Gifted

Techniques for the gifted are no longer aimed at the gifted classroom, but at developing creative talents in every person. Because a student is labeled as learning disabled he runs the risk of being removed from stimulating and creativity inducing environments. The LD teacher is in the position of being responsible for balanced development of "the whole child--or student."

Wherever possible the teacher should explore and encourage the development of creative and critical thinking through methodologies or materials contained in the teacher or in the introductory resources suggested below.

Covington, M. V., Crutchfield, R. S., Davies, L., & Olton, Jr., R. M. The productive thinking program: A course in learning to think. Columbus, Ohio: Charles E. Merrill Publishing Co., 1974.

Leonard, G. B. Education and ecstasy. New York: Delta, 1968.

Suchman, J. R. The elementary school training program in scientific inquiry. Urbana: The University of Illinois, 1962.

Gallagher, J. J. Teaching the gifted child (2nd ed.). Boston: Allyn and Bacon, 1975.

SUGGESTED DEVELOPMENTAL ACTIVITY AND A NON-ACTIVITY

The learning disabilities student in the secondary school does not need specialized techniques and materials that set him observably apart from his peers and reinforce the special label. Instead, the major activities needed are those of teacher development. No curriculum or materials can ever really adequately compensate for a teacher who is poorly prepared or disinterested in the student and his problems.

In-depth treatment of the various topics suggested in this paper, as well as others of concern to adolescents, should be pulled together as resource material. The potential relationships to secondary LD programs should be shown in each case.

In-service in methodology for the content area teacher should be developed with content area personnel in conjuncion with special educators. Resources are already available through secondary education and educational psychology.

Simulations should be developed to help the beginning LD teacher survive in the secondary school, and further to learn to use the various opportunities in the local school to the advantage of the student.

A better job must be done through teacher education of teaching the teacher to use instructional processes appropriately, to analyze and develop curriculum and materials, and to gain wide experience with adolescents. Basic attention needs to be given to training in the multiplicity of methodologies available at the secondary level.

The secondary LD teacher also needs special training in organization and management skills because of the back and mindbreaking time demands in secondary education.

CONCLUDING COMMENT

This paper has presented an overview of curriculum and materials of possible value in secondary programs for the student labeled as learning disabled. An overview of "scope" has been set, and the "sequence" of implementation depends upon local interests, initiative, and resources. If the We in "What We Have and What We Need" refers to the field of learning disabilities, then We have very little at the present time. However, if it refers to the broader professional possession of a wide range and variety of possibilities to explore, use, and adapt from areas outside of learning disabilities, then the possibilities for the future are not only challenging, but provocative and exciting as well.

References

Allen, D. & Ryan, K. Microteaching. Reading, Mass.: Addison-Wesley, 1969.

Ashlock, R. B. Error patterns in computation: A semi-programed approach. Columbus: Charles E. Merrill, 1972.

Association for Children with Learning Disabilities. 2200 Brownsville Road, Pittsburgh, Pennsylvania 15210.

Brown, L. Toward the development and implementation of an empirically based public school program for trainable mentally retarded and severely emotionally disturbed students. Madison, Wisconsin: Madison Public Schools Department of Specialized Educational Services, 1971 to date. (Four parts.)

Bent, R. K. & Unruh, A. Secondary school curriculum. Lexington, Mass.: D. C. Heath and Co. Division of Raytheon Educational Co., 1969.

Blanton, W., Farr, R., & Tuinman, J. J. (Eds.). Reading tests for the secondary grades: A review and evaluation. Newark, Delaware: International Reading Association, 1972.

Brogden, J. D. Developing communication skills in non-committed learners. West Nyack, N. Y.: Parker Publishing Co., 1970.

Goodman, Y. M. & Burke, C. L. Reading miscue inventory. New York: The Macmillan Co., 1972.

Gage, T. How can we help kids read science textbooks? The Science Teacher, 1974, 41 (9), 37-40.

Gordon, A. K. Games for growth. Palo Alto: Science Research Associates, Inc., College Division, 1970.

Hoover, K. H. The professional teacher's handbook: A guide for improving instruction in today's secondary schools. Boston: Allyn and Bacon, 1973.

Kim, E. C. & Kellough, R. D. A resource guide for secondary school teaching: Planning for competence. New York: Macmillan Publishing Co., Inc., 1974.

Laycock, M. & Watson, G. The fabric of mathematics (K-9). Hayward, Calif.: Activity Resources Co., Inc., 1971.

Joyce, B. & Weil, M. Models of teaching. Englewood Cliffs, N. J.: Prentice-Hall, 1972.

Mullish, H. How to get the most out of your calculator. New York: Collier Books Division of Macmillan Publishing Co., Inc., 1973.

National Council of Teachers of Mathematics. Inservice education: Views of teachers. A report of the Commission on the Education of Teachers of Mathematics. Washington, D. C. National Council of Teachers of Mathematics, 1975.

Nettleton, A. & Sapone, C. Readability: Matching the reader with print. Madison, Wisconsin: The Madison Public Schools Department of Curriculum Development, No date.

Rush, M. L. The language of directions--A programmed workbook. Washington, D. C.: Alexander Graham Bell Association for the Deaf, Inc., 1970.

Samalonis, B. L. Methods and materials for today's high schools. New York: Van Nostrand Reinhold Co., 1970.

Skinner, B. F. & Krakower, S. A. Handwriting with write and see. Chicago: Lyons and Carnahan, Inc., 1968.

MATH CURRICULA FOR THE SECONDARY LEARNING DISABLED STUDENTS

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It is generally agreed that comprehensive planning at the secondary school level is one of the more neglected areas of special education. It seems safe to suggest that the problem facing the special educator planning secondary school mathematics is acute. Learner achievement in mathematics has long been a concern of mathematicians and mathematics educators. The difficulty of determining what constitutes failure, what constitutes underachievement, and what constitutes a learning disability is most complex. The failure rate in secondary school mathematics exceeds that of any other subject. "Failure" refers ordinarily to a combination of grades given by the instructor and to performance on standardized tests. It might also be indirectly related to attitudes as reported by Keating (1974) who notes that mathematically precocious youth express disillusionment with school. Asbury (1974) has recently compiled an extensive summary of literature relevant to over and underachievement. "How much of what?" seems to be a significant variable in making a determination of underachievement. The variables cited as contributing to underachievement are often those ascribed by special educators to children thought to possess learning disabilities. These include cognitive factors, both general and specific, and noncognitive factors as much as emotional difficulty.

It seems that the present dilemma relative to problems at the secondary school level is, in part, a function of some of the hidden agenda early in the learning disabilities movement. Specifically, three factors can be cited. The first factor is found in our efforts to develop a category which was both inclusive and exclusive. Special education had to be exclusive in order to avoid being forced to use existing categories as well as the principles and programs that were being utilized to meet the expressed needs of other categories. We had to be sufficiently inclusive, both in terms of definitions and criteria, to demonstrate that we in fact had a category of learners worthy of program development, The latter ultimately emerged as (1) average or better in intelligence, (2) a discrepancy between expectancy and achievement, and (3) a disorder in one or more areas of processing.

The second item among our hidden agenda was the implication that this category represented a set of curable phenomena. Like it or not, our efforts have been clearly remedial or corrective. Special educators searched for instructional materials and methods that would provide a rapid enhancement of the developmental status of the learner. This resulted in a near total disregard for comprehensive curriculum planning. There has been considerable effort focused on the child during the time he is active in the remedial situation but there has been a near total neglect of his needs throughout the entire day, week, month, or years that follow. And, we seem to have some information (Koppitz, 1971) that the remedial effort is only partially paying off. The other evidence questioning the efficacy of our remedial concerns is the current need to develop secondary school programs.

The third factor which seems to be plaguing the field today emanates from the fact that we as professionals gave the impression that we had produced the diagnostic and instructional practices necessary to meet the needs of the learner. An examination of many of our leading texts suggests that clinical experience and intuition are the dominant sources of our knowledge bank, rather than substantive research. Personnel training programs were developed without an adequate body of research. The proliferation of training programs remains unabated. The skills and competencies transmitted to the trainees are as many and varied as the backgrounds of the individuals who have developed these programs.

The net result of the aforementioned is that we continue to have a definitional problem, we are fostering a lack of comprehensive planning and we are training individuals without an adequate body of research and knowledge upon which to base these training programs. The one advantage in the area of mathematics programming is in the hope that experimentation and inquiry will (1) clarify the problem of definition, (2) formulate the basis for instruction, curriculum, and training and (3) produce valid delivery systems. Mathematics is the one area where these items might still be dealt with because so little has been done to date that none of us have intense vested interests.

What does the previous discussion mean in terms of the present paper? To me, it means that learning disabilities must be viewed as a concept rather than as a label or category. As such, it will become operational within the set of children referred to as handicapped. As a concept, it will identify the interrelationships among principles, and understandings, and select a common group as a basis for research, theory, and application. In its most superordinated form, (Figure 1), it will contain subsets of children referred to as hearing impaired, visually impaired, mentally handicapped, emotionally disturbed and so forth. The concept of learning disabilities will manifest itself as an inordinately negative discrepancy between achievement and expectancy within each of these subsets. One fundamental principle might be that diagnosis and instruction should be linked together. An understanding for the professional worker who is engaged in program development might be that regardless of how specific a learning problem might be in a given child, we are obligated to view the individual as a "whole child." Thus, we will simultaneously attend to remediation (instruction) and content (curriculum). Our own efforts along these lines have resulted in the development of a programmatic enterprise (Cawley, et al, 1973, 1974) that provides opportunities for remediation to take place within specific curricula areas (e.g., perceptual training can take place in science).

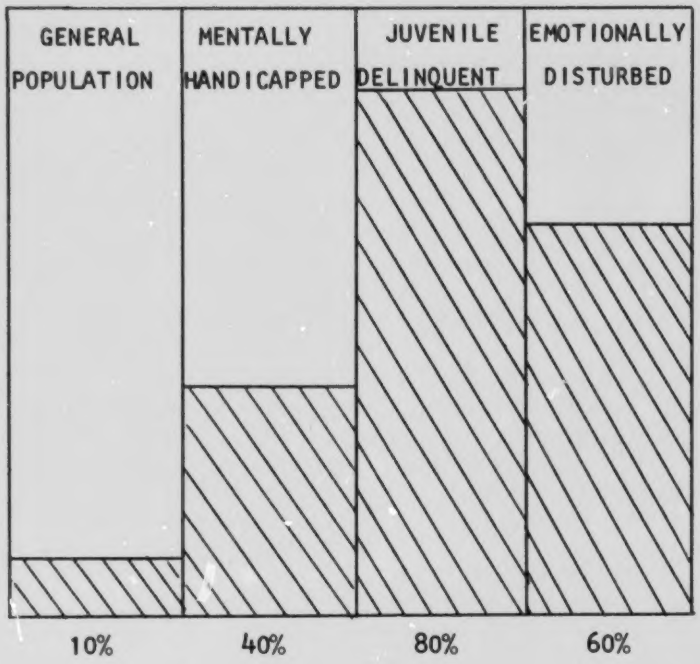

FIGURE 1. REPRESENTATIONS OF LEARNING DISABILITY AMONG CHILDREN

Mathematics tends to be somewhat unique in terms of learning disabilities because so little is known at this point in time. We lack, for example, a broad based theoretical approach or rationale that will permit different groups of research workers to attack the problem in different ways or to attack different parts of the problem in similar ways. This is an essential element in the system if we are to arrive at a logical conceptualization of learning disabilities in mathematics in general and at the secondary school in particular.

Programmatic efforts relative to learning disabilities in mathematics must consist of at least two components. One of these is a remedial component; the other is a curriculum component. The remedial component should be characterized by a diagnosis-to-instruction linkage that will attack specific problems, ameliorate these problems and return a reasonably intact child to the curriculum. The curriculum component should be characterized by a comprehensive scope and sequence of mathematics developed and presented in such a way that the effects of learning disabilities can be separated (e.g., a child who cannot read can be taught mathematics without reading).

I believe that the fundamental criterion which signals learning disability in secondary school mathematics is chronicity. Without clear indications of chronicity, there must be indisputable evidence that what is being referred to as learning disability is not manifest on a basis of content (curriculum) alone. What is meant here is that we do not have a learning disability in the case of the child who has consistently demonstrated intact responses to instruction and learning in the elementary grades. This necessitates that IQ be separated or recessed within this notion because children in a variety of ability ranges can manifest learning disabilities (Cawley, Goodstein, and Burrow, 1972).

The learner whose grade equivalent performance has been generally satisfactory throughout the elementary grades should not necessarily be labeled "learning disability" if he encounters difficulty with secondary school mathematics. In this instance, failure and learning disability are not synonymous. The exceptions are likely to be the youngster who has suffered some recent psycho-medical insult or the youngster who was able to successfully compensate throughout the elementary grades only to find that the complexity of secondary school mathematics is such that these techniques are no longer effective.

The content and skill requirements of mathematics continue to increase in complexity throughout the life space of an individual. Whereas most of the rules of the natural language of the individual are formulated relatively early in life and the processes of reading are typically acquired by the fifth or sixth grade there remains a considerable amount of mathematics to be acquired. By sixth or seventh grade, children are ordinarily able to perform the basic operations on whole numbers through long division, Yet somewhere in this range, they may begin to translate their skills in the operations, to rational numbers. And at some other time a new entrant to the field, square root, will occur. Subtle, but formidable transfer of learning experiences are encountered.

Nearly all mathematics, and more specifically secondary school mathematics (grade 7-12), are associated with a definitive subject matter framework. Mathematics is highly valued in and of itself, for its contributions to society and for its stability across cultures. Teachers of mathematics are highly trained in the subject matter and minimally trained in the psychoeducational processes. Teachers in the area of learning disability are relatively sophisticated with the psychoeducational processes and often less capable with the current topic. There tend to be a couple of reasons for the latter. First of all, training in learning disabilities has emphasized the psychoeducational processes in reading and language areas. Secondly, a large percentage of the trainees tend to have the more generalized background of the elementary school. I believe that this has produced a situation wherein the mathematics educator and the special educator have sought to explain failure in mathematics somewhat differently.

The differences in the competencies and interests of the professional worker may be one of the factors which results in a tendency for mathematics educators to view failure in mathematics somewhat differently from special educators. The mathematics educator suggests that failure in arithmetic may be due to a number of factors, may times relating these to cognitive complexity, method of instruction, and mastery of prerequisite learnings. Math may be too abstract for the child; math instruction may have been initiated before the child was ready to deal with the concepts presented; the child may not have had the prerequisite skills necessary to go on to a new skill; teaching methods may have been at fault (Schonell and Schonell, 1957, Reisman, 1972). The difficulties with mathematics seem to be looked upon as problems of the "system," including curriculum and methods. Reeve's 1923 statement exemplifies this concern. He stated, "I think it (performance) is largely due to the stupid way in which mathematics is too often presented to the pupil" (NCTM, 1970). Whitecraft (1930) presented a somewhat more balanced set of concerns. He felt that failure could be traced to (1) the materials of mathematics, consisting of the textbook, practice exercises and special devices; (2) the teacher's method of instruction and manner of presenting the subject matter to the pupils; or (3) the methods and processes of the pupils themselves.

Special educators have tended to look for problems within the characteristics of the child to explain the nature of the disability. Johnson and Myklebust (1967) indicate that dyscalcultics (1) are different in visual spatial organization and nonverbal integration, (2) have extraordinary auditory abilities, (3) may excel in reading vocabulary and skills, (4) may have disturbances of body image, (5) may have possible disorientation problems, (6) may have poor social perception, and (7) may have higher verbal than nonverbal functions. This list in itself constitutes a formidable set of areas for research relative to specific learning disabilities in mathematics.

Lerner's (1971) work carries much of the same tone as that of Johnson and Myklebust (1967) relative to arithmetical disturbances. Her list of characteristics is similar to that of Johnson and Myklebust and like other writers does not extend the development of a theoretical approach to identification or remediation. She suggests that materials for teaching arithmetic should be considered to be tools that are useful when they are appropriate to the child, his disability, the diagnosis, and the teaching plan.

Cohen (1971) has contributed significantly to our knowledge relative to the nature of arithmetic and learning disabilities. He emphasizes the symbolic nature of mathematics and its interrelationships with verbal and nonverbal logical processes. His extensive work into the psycho-neurological correlates of arithmetic disabilities has resulted in the conclusion that the arithmetic disabilities constitute a subset of language disabilities which can be superordinated into a classification that should be designated as a disorganization syndrome.

We do have data to show (Goodstein and Sedlak, 1974) that memory factors are differentially characteristic among average, learning disabled, and mentally handicapped children during problem solving. This study showed that LD children required a greater number of trials to criterion than the other samples and that the average and mentally handicapped samples each demonstrated significantly less attrition than the LD sample.

In another study (Goodstein and Kahn, 1974) it was found that in the sample of learning disability students, reading achievement, measured intelligence, and arithmetic computation are stable and independent factors. Disability or non-disability in one area could not predict the child's level of functioning in either of the other two areas.

Lepore (1974) found the errors made among EMR and LD students in arithmetic were similar if mental age was controlled. Some of the errors were extreme departures from the norm for both groups. Cox (1973) also found that both handicapped and non-handicapped students made the same type of systematic errors in the four basic areas of computation with whole numbers.

Ordinarily, one can find some relief when confronted with a problem such as this in the literature. The sad truth of the matter is that there is such a paucity of relevant literature that the notion of benign neglect is certainly appropriate. This is readily obvious in the special education literature.

Spencer and Smith (1969) provide some indication of just how little attention has been given to the problem of mathematical disabilities. In a relatively brief chapter, they devote two full pages to data from a study which presents "Types of Arithmetic Habits Observed in Elementary Pupils." The source of their data is a 1925 study.

Myers and Hammill (1969) reviewed various theoretical and programmatic considerations relative to methods for learning disorders. In evaluating the selected authorities (Freidus, Lehtinen, Cruickshank, Myklebust) these authors report only scant attention to arithmetical disabilities, their nature, and suggestions for remediation.

And, the problem is equally disheartening when one turns to the literature in mathematics education. Even considering the 1972 Yearbook of the National Council of Teachers of Mathematics, The Slow Learner in Mathematics, we do not obtain significant insights relative to the problem of mathematical disabilities. There is a significant number of teaching illustrations in this volume, and the chapter by Elizabeth Collins (1972) does focus on the secondary school.

What To Do?

The Diagnostic-Remedial Component
The Curriculum Component
The Training Component
The Administrative Component

THE DIAGNOSTIC-REMEDIAL COMPONENT

According to Reisman (1972) diagnostic teaching is a blend of the hierarchy of the learning processes with the level of the child's functioning. Through diagnostic teaching, the teacher identifies strengths and weaknesses, formulates a strategy for ameliorating the problems, and applies remedial techniques. Additionally, I feel that compensatory strategies should be introduced by way of the strengths of the child.

Glennon and Wilson (1972) have elaborated on the diagnostic-prescriptive model. They express the opinion that the diagnostic-prescriptive model is interrelated with two essential variables: one is the curriculum variable, the other is the method variable.

The curriculum variable focuses upon what mathematics is of most worth, whereas the method variable focuses on the question of what method is of most worth in the diagnosis and prescription for learning disabilities. Of the two, the latter is "far more complex" (p. 288). These authors suggest the need to consider a triad consisting of content, behavior, and psychological learning products. In their taxonomy, content relates to the curriculum of the elementary school mathematics; behavior relates to those components of the cognitive domain, after Bloom; and, learning products are modeled after Gagne's eight types of learning. We (Cawley, et al., 1974) agree with the necessity to integrate diagnostics and prescriptive teaching and, although we do use a construct somewhat different from that of Glennon and Wilson, we do feel that idiographic procedures combined with interview techniques are quite likely to offer more potential than nomothetic procedures.

It is ironic that the instructional elements of mathematics have persistently highlighted the use of manipulatives, iconic or pictorial representations, and other processes in instruction, but that our diagnostics have failed to differentiate themselves accordingly. It is even more interesting to note that the variety of algorithms that children might employ in their performance is consistently neglected in diagnostics. In effect, what we have are content instruments which require the learner to perform selected tasks in mathematics without attention to either his most (least) efficient modes of performance or to the appropriateness or efficiency of the algorithm he employs. This is evident at the secondary school level where most testing (not that all testing is diagnostic) is done with the graphic symbolic mode (reading and writing). It is equally interesting to note that instruction and learning at the secondary school level make full use of the graphic symbolic mode. What is needed is the development of a diagnostic strategy that will integrate the parameters of content, mode, and algorithm. This will enable us to identify instructional alternatives based upon learner characteristics. This will have to be paralleled by the development of remedial processes that also consider the content x mode x algorithm model.

The Clinical Mathematics Interview (CMI) is a diagnostic process that enables us to integrate the content x mode x algorithm model. Content is the curriculum; Mode(s) are the interactions through which instruction takes place*; Algorithm is the rule by which the learner attempts to solve the tasks.

Let me briefly present a few illustrations as explaining the CMI and the content x mode x algorithm model.

The first step in the administration of the CMI is to have the child complete the relevant computation test(s) for a specific area (e.g., addition of whole numbers) in the graphic symbolic/graphic symbolic mode. The test is scored and the examiner sorts the correct and incorrect responses into sets. The child is then requested to explain verbally to the examiner how he did each of the problems (this is the algorithm search). The third step, not necessarily on the same day, takes place when the examiner asks the child to perform a set of tasks (e.g., working with whole numbers) in selected combinations of the other forms of interaction.

A child completed the following:

$$\begin{array}{r} {}^{5}\cancel{6}\overset{1}{4} \\ -\ \underline{35} \\ 39 \end{array}$$

His response is incorrect. Is it because he erred in subtraction? No! He inappropriately used a non-conventional algorithm. This learner subtracted from left-to-right. He subtracted three from six and put down his remaining three. He then subtracted five from four by renaming, which he did correctly. Lepore's work uncovered numerous instances of algorithm deficits similar to those above. The instructional question is one of deciding whether to correct the left-to-right algorithm (ordinarily this is easily done) or to convert the youngster to the standard right-to-left algorithm. In the case of this youngster, the instructor might have perceived the child as a content problem (e.g., not knowing 5 - 3).

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*These are defined in the section relative to curriculum

Nor, is the algorithm only relevant when the response is incorrect. Take the task 7 + 8 = as given to six learners who responded as follows:

A	B	C	D	E	F
7	7	7	7	7	7
+ 8	+ 8	+ 8	+ 8	+ 8	+ 8
15	15	15	14	16	14

Three responses were correct; three were incorrect. In spite of the fact that D. E, and F were incorrect, it is possible that the algorithms used were more sophisticated than A, B, and C. Supposing A, B, and C simply responded from rote memory, but when requested to prove their answers in an alternate mode, they were unable to do so. Assuming D, E, and F were able to do so, who then is more likely to respond correctly to:

$$\begin{array}{r} 796 \\ 834 \\ \underline{756} \end{array} \qquad \text{or} \qquad \begin{array}{r} 709 \\ \times\ \underline{807} \end{array}$$

when "memory" is partialed out? Another example of the need to control specific variables and to integrate these with the content x mode x algorithm is illustrated in the work of Sherman (1972). The student is asked to complete the following:

$$(a + b)^2 = a^2 + b^2 + 2ab, \text{ where } a = 3;\ b = 5.$$

When this is represented algebraically as shown above, the symbolically deficient student may be unable to perform the computation or to analyze the concept. When presented in a symbolic manner as

$$(3 + 5)^2 = (3)^2 + (5)^2 + 2\ (3 \times 5)$$

the task can be completed with pictorial or manipulative materials. The learner is aided in the discovery of the mathematical rule or principle in this task through the use of alternative modes. Thus, if we are to attend to the nature of specific learning disabilities in mathematics among handicapped children, we must attend to the triad: content/mode/algorithm.

The remedial efforts which parallel the CMI must contain instructional alternatives as follows:*

(1) Algorithm: A) Describe a set of procedures to reinforce the conventional algorithm
B) Describe a set of procedures to convert a non-conventional algorithm to the conventional algorithm

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*An illustrative module can be obtained from A. M. Fitzmaurice, U-7 University of Connecticut, Storrs, Connecticut 06268

C) Describe a set of procedures to the incorrect use of conventional or non-conventional algorithms to their correct usage

(2) Modalities for Instruction:

A) Describe a set of instructional procedures according to each of the sixteen interactive modes

(3) Content: A) Specify the range of content covered by this set of instructional alternatives

(4) Instructional Evaluation:

A) Identify one or more items that can be used to assess the effectiveness of the instructional alternatives

THE CURRICULUM COMPONENT

Curriculum at the secondary school level is ordinarily predicated upon the acquisition of a set of prerequisite skills at the elementary level. Curriculum offerings at the secondary school level tend to be presented in considerably more homogeneous grouping than at the elementary level. Curriculum at the secondary level is highly associated with the preparation of the student for higher education or with a terminal vocationally related education. Curriculum at the secondary level is developed, interpreted, and presented by subject matter specialists. Curriculum at the secondary level is highly symbolic and not ordinarily presented via a multi-media or multi-modality approach.

The plight of the child with learning disabilities is accentuated at the secondary school level because:

(1) He has not usually attained the prerequisite skills and the curriculum does not encourage a remedial orientation. His means of "catching up" are limited.

(2) He is often grouped with youngsters who are considerably below the level of his general cognitive ability. Even this fails to provide the appropriate remedial emphasis and is likely to depress his level of motivation.

(3) He is channeled into a form of program which may be inconsistent with his personal goals, or the goals of his family when his situation is not fully recognized (e.g., we plead his case on the basis of his learning disability and enroll him in the higher education track when the reality of the situation is that he may not overcome his learning problems).

Figure 2

CHARACTERISTICS AND DEFINITIONS OF INTERACTION MODES

Instructor	Learner
Construct: to manipulate, arrange, etc., two or three dimensional stimuli	Construct: to manipulate, arrange, etc., two or three dimensional stimuli
Present: to make fixed presentations of two or three dimensional stimuli	Identify: to point or mark as in a multiple choice task using nongraphic symbolic two or three dimensional stimuli
State: oral statements	State: oral statements
Graphic Symbolic: reading, writing, drawing of words, numerals, and other graphic stimuli	Graphic Symbolic: reading, writing, drawing of words, numerals, and other graphic stimuli

(4) The subject matter specialist lacks the psychoeducational foundations which are necessary to interpret cognitive, perceptual or linguistic data that may be relevant to mathematics.

(5) The child who is symbolically deficient (e.g., unable to read) might be quite capable of, for example, cognitive performance at the level of formal operations.

One approach to reducing the negative impact of the content based curriculum on the learner might be to approach curriculum development with the same content x mode x algorithm design that was proposed earlier. Here we are thinking about children who are not necessarily remedial, but who do have long term learning problems. The essential recommended element is the interactive component which provides the modes. Figure 2 lists the mode behaviors and definitions. Original versions of interactive modes are presented in Cawley and Vitello (1972) and Smith (1974). What emerges is a combination of 16 alternatives for instructor/learner interaction. I believe that curriculum will have to be presented through as many combinations as is possible in order to meet the needs of the youngster who is learning disabled. It may be that the correct combination of modes will permit a youngster to display his maximum potential in mathematics. One wonders, for example, if the youngster who has an excellent combination of algorithms and selected compensatory behavior could use an electronic calculator to perform the operation.

The content x mode x algorithm design also enables the clinicians to incorporate selected relevant factors into the diagnostic/remedial processes. We might, for example, attend to language factors. Patterson (1974) suggests that attention to mathematics problems through language and reading should attend to two factors. These are language patterns and language units. Patterns are of two types, explanations and problems; units consist of sentences, paragraphs, and chapters. Explanations consist of extensive presentations of mathematical concepts, often accompanied by exercises; problems consist of word problems or concept testing tasks. The character and usage of written material in sentences, paragraphs, and chapters is effectively enhanced if appropriate attention is given to vocabulary. In our own work at the University of Connecticut, we have consistently demonstrated a capacity to covary the influence of many linguistic and reading factors.

One extensive volume, A History of Mathematics Education in the United States and Canada (NCTM, 1970) expresses a constant theme relative to the goals of mathematics at the secondary school level. While there is some attention given to the matter of failure, the topic itself has not been of the highest importance with respect to actions taken by mathematics specialists. The central theme of the document relates to mathematics as an entity in and of itself with particular reference to college bound students. The more modern emphasis emerged in the early 1950's. These efforts were directed toward the traditional goal of preparing college bound students for advanced work in mathematics, with an emphasis on understanding. The University of Illinois Committee on School Mathematics has been most influential in this regard. The School Mathematics Study Group also concentrated its efforts in the direction of college preparatory youth. They did, however, develop materials for below-average students. Rudman (1934), Eisman (1939), Reeve (1944), Sobel (1959), and Elder (1967) also recount the problems and make recommendations relative to secondary school mathematics for underachieving children. Their attention is typically directed to "slow-learners" and not to the concept of learner disability as stressed in this paper.

THE ADMINISTRATIVE COMPONENT

An effective secondary school program in mathematics ought to have at least two administratively provided components. One of these is a team. This team should include a specialist in mathematics, a diagnostician, and specialists in remedial and instructional methods. The second administrative necessity is an adequate physical arrangement consisting of space, materials, some tie into pupil and teacher scheduling, a definitive link to the "curriculum committee," and time for the team to get together.

The program should provide the aforementioned in sufficient quantity to enable some youngsters to be enrolled full-time and some part-time.

It is necessary to organize the program to meet the needs of these (Cawley, 1970) rather than to expect that the child must make all the necessary adaptation. We want to avoid situations similar to one explained to me by a mathematics teacher in one of our largest school systems. This teacher was confronted with a number of children who were unable to handle the prescribed course in algebra. He took it upon himself to attend to the development of prerequisite skills. But, according to the system, the youngsters were given grades of "F" because they did not "pass" algebra.

THE TRAINING COMPONENT

Special education has not devoted an excess amount of resources to the secondary school level. The learning disability component has generally focused upon the elementary level because of its remedial orientation. However, as we are well aware, the concept of learning disability has not been fully remedial and our efforts must now include curriculum. The initial step in the development of an effective training program should be to acquire a body of knowledge on which to build the training programs. Acknowledging that that sequence is unlikely, my inclination is to suggest that we focus on selecting individuals who have a background in mathematics and that we train them in the cognitive-linguistic area, psycho diagnostic procedures, and in curriculum and instructional modification and development. I believe that the dynamics of the secondary school are such that while the non-subject matter specialist might plod through the remedial program, he will not have sufficient influence in curriculum.

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PSYCHO-SOCIAL CHARACTERISTICS OF LEARNING-DISABLED ADOLESCENTS

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THE STUDY OF CHARACTERISTICS

An issue confronting the learning disabilities field is identifying those characteristics which differentiate the learning disabled pupil both from other problem learners and from pupils who do not evidence learning disorders. Considerable attention has been directed to studying the characteristics of learning disability students in the primary, elementary, and intermediate grades (Clements, 1966, Myklebust and Boshes, 1969, Deutch and Schumer, 1970, DeRuiter, 1973), but little data exist on learning disability youngsters in the junior high school and high school age groups (Anderson, 1970, Deshler, 1974). Before differential remedial programming can be specified for a secondary learning disability population, the issue of differentiating the target population from the larger population should be considered. Some have emphasized the ill side effects of categorizing youngsters on the basis of their primary disability, but an awareness of the disadvantages of possible categorization does not preclude determining the characteristic deficiencies that result from specific disabilities. These characteristic deficiencies are relevant to understanding the means by which a given student or group of students learns.

The information currently available on characteristics of secondary learning disability populations is based primarily on clinical or classroom observations of adolescent learners (Hagin, 1971, Strother, 1971, Siegel, 1973, Wilcox, 1970, Drake and Cavenaugh, 1970). Furthermore, the research and observational literature dealing with characteristics of secondary populations often does not clearly define the target populations dealt with. Thus, the comparison of research and observational findings is difficult. Bryant and McLoughlin (1972) assert that the variables which characterize learning disabled youngsters are a function of the definition used for selecting subjects. Thus, the need for a clear definition of criterion levels for inclusion and exclusion is a logical prerequisite to a clear delineation of identifying characteristics of a given population.

To delineate variables which characterize learning disability subjects is a complex undertaking. The identification of some common variance among most youngsters with learning disabilities is not accomplished by citing elaborate lists of characteristics popularly associated with the condition of learning disabilities. Such an approach often results in the inappropriate and eventually meaningless application of certain terms (for example, hyperactivity, perceptual deficit, distractibility). The study of learning disability characteristics should weigh the relative importance and prevalence of various characteristics at different age levels, in different types of disabilities, in different settings, and in different combinations. The following considerations should be kept in mind in the study of characteristics of an adolescent learning disability population:

1. The presence of any given characteristic is neither sufficient nor necessary to determine if a youngster has a learning disability. Conversely, all characteristics commonly associated with learning disabilities need not be present in order to cause a reduction in a student's educational and social adjustments.

2. A critical issue in identifying and operationally defining handicaps is that of cutoff points. Cutoff points on general characteristics, such as intelligence and visual or auditory acuity, have defined mental retardation, blindness, and deafness as handicaps. However, the difficulty with cutoff points has been well documented in situations of misclassification. In the case of learning disabilities, if a cutoff point from a single measure could be established, it would not be sufficient to explain the condition because the characteristic would also be present in part of the non-learning disability population as well. Thus, delineating differences between learning disability and non-learning disability populations is more complex than the "either-or" solution implied by considering the condition of learning disabilities to be located in the lower portion of a learning continuum as defined by a single cutoff point.

3. In redefining learning disability, Kass (1974) has suggested that one of the conditions of learning disabilities is that it remains at maturity. Similarly, Rogans and Lukens (1969) suggest that a learning disability is characterized by a persistence or chronicity. They also note that the disability may manifest itself in changing ways as the youngster matures and school demands change. The question of how manifestations of a disability vary as a function of chronological age is a critical one. The presence of characteristics commonly associated with learning disabilities at younger ages has not been fully determined in adolescent populations. For example, Clements (1966) has listed, in order of prevalence, ten differentiating characteristics* of minimal brain dysfunctions. This listing is based on research conducted primarily with children rather than adolescents. Thus, any generalizations of characteristics made from a younger age group and applied to an older one should be done with caution.

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*The ten most commonly cited characteristics resulting from Clements' review are, (1) hyperactivity, (2) perceptual-motor impairments, (3) emotional lability, (4) general coordination deficits, (5) disorders of attention, (6) impulsivity, (7) disorders of memory and thinking, (8) specific learning disabilities, (9) disorders of speech and hearing, and (10) equivocal neurological signs and encephalographic irregularities.

4. Characteristics associated with learning disabilities are often closely related. Myers and Hammill (1969) emphasize the influence of one characteristic on another and the interrelation and progressive debilitating influence of given characteristics on behavioral and academic outcomes. In a study of forty component disabilities thought to be correlated with learning disabilities, Wissink (1972) has found that none of the factors were judged as being totally independent. Thus, the high probability of characteristic overlap should be considered, and characteristic groupings should not be treated as mutually exclusive. Banks and Finlayson (1973) also discovered a high degree of interrelationship between characteristics which were associated with success and failure in secondary schools.

5. While it is possible to conceptualize every learned behavior as a potential area of learning disability, only a relatively small number of areas have been regarded as being basic to the field. Typically, the areas of emphasis have involved the use of spoken or written language in an academic setting and the implications of deficient academic skills on educational opportunities. This emphasis may be appropriate when the target population consists of primary, elementary, and intermediate aged children because dysfunctioning in learning primarily "calls attention to itself" in poor performance in academic skill areas. As youngsters with learning disabilities enter adolescence, inadequate academic performance is still a major concern, but social demands and pressures external to the classroom often exert sufficient stress to expose non-academic characteristics. Consequently, any discussion of characteristics pertaining to learning disability adolescents must include those factors which would diminish youngsters' academic success as well as their employment and social adjustment.

6. Learning disabled junior high school or senior high school students are adolescents, and they are subject to demands and influences unique to that particular period of development. Adolescence has been posited as a critical developmental period, as a time of rapid and profound change along both physical and psychological dimensions (Eisenberg, 1965). Humans at all ages, however, experience certain physical and psychological changes as a function of development. It has been suggested (Bernard, 1972) for example, that changes during other developmental stages (for example, the first two years of postnatal life) are equally, or in some cases, more accelerated than those occurring during adolescence. Adolescence is merely a growth period between the onset of puberty and maturity. Nevertheless, psychology and education literature often embellish the definition of referring to adolescence as a period of abnormal stress and strain, a time of rapid growth and perplexity, or a period during which individuals have difficulty determining their place in either the world of children or adults. For the most part, generalizations about adolescents have limited applicability because proof can be found for almost every generalization. Among the common generalizations not strongly documented are the following: more changes take place in adolescence than during an equal number of years beginning with birth; adolescents are awkward and uncoordinated; and adolescents experience an abnormal "growth spurt." For each individual at a

given time, some or all of these generalizations may be true, but they do not represent a set of universal adolescent experiences.

While caution should be exercised in making generalizations about adolescence as a developmental period, educators should be aware of some of the unique pressures encountered by adolescent youngsters. For example, sexual maturation and the desire to become independent and autonomous from adult domination may precipitate unique behavioral characteristics. In that all adolescents may evidence these developmentally unique traits, these variables should not be interpreted as being learning disabled characteristics. On the other hand, awareness of pressure and the expected changes in adolescent development may provide insight into a youngster already saddled with a learning disability. There are innumerable questions on the effects of adolescence on behavior. Perhaps the best posture for educators is an awareness of how developmental pressures may precipitate a problem in learning or adjustment. Thus, characteristics unique to a handicapping condition should be examined in the larger milieu of external and internal factors.

The following discussion on psycho-social characteristics attempts to delineate subject and environmental characteristics which both described and account for adolescent learning disabilities. The characteristics have been arbitrarily divided into the following categories: academic-cognitive factors; personality-social factors; and perceptual-motor factors. Such a classification is obviously subjective, and the placement of a component in a particular category does not imply its independence from other components or that the categories are mutually exclusive.

Academic-Cognitive Factors

While the characteristics which define learning in the disability sense have not been adequately researched (Bryant and Kass, 1972), disability at the high school level appears to show a lack of hierarchical acquisition of functions associated with normal academic achievement. By the time students reach high school age, previous developmental functions should have been systematically integrated so that students are capable of performing complex tasks with high efficiency. When basic skills have not been integrated by high school age, performance in curriculum requirements will most likely be affected, because the academic materials at this level are complex in nature and demand a synthesized, efficient application of skills. The thrust of the elementary academic program for the learning disability child, as well as for those without learning disorders, is the acquisition of academic skills in reading, spelling, language, and arithmetic. The need for additional training in the basic skills is still crucial for the learning disability youngster in high school, but regular curriculum focuses more on various content areas which demand the application of basic academic skills instead of their acquisition. The discussion of subject variables relating to academic and cognitive factors has been divided into three areas: performance profiles and cognitive abilities, language and communication, and skills for independent functioning.

Performance profiles and cognitive abilities. A profile of academic abilities reflecting both strengths and weaknesses is commonly associated with learning disabled children. Authors who have described the learning disabled adolescent have noted that these youngsters also evidence a jagged profile in achievement level and inconsistency in performance (Gordon, 1969, Siegel, 1974). Using a Bayesian analysis* of test scores on learning disabled and normal adolescent samples, Deshler (1974) has found significant overlap in the performance of the groups. This supports the notion of a profile of variant abilities and indicates that youngsters in an adolescent learning disability population do not have a suppressed profile in all areas of academic functioning.

Some authors have noted that measures of cognitive abilities on reading and learning disability populations reflect a decrease as a function of age. Myklebust (1973) for example, has indicated that the highest scores on the Primary Mental Abilities Test and the Draw-A-Man-Test were attained by the nine and eleven year old reading disability groups, and the lowest by the fifteen year old group. Myklebust does not feel that this trend indicates a decrease in potential but rather an inability to achieve at a normal rate. Others have also identified lower measures of cognitive abilities among older aged youngsters and have attributed the performance to delays in maturation. Brutten, Richardson, and Mangel (1973) stress that logical reasoning and abstract thinking skills do not develop as early in learning disability adolescents as they do in peers. A Standard Research Institute Report on compensatory education (1974) speaks of maturational deficiencies in describing the poor performance of some high school students. It notes that intensive educational efforts with certain older individuals may be as effective as early intervention with other segments of the population because of accelerated rates of cognitive development experienced by some in the adolescent period. Another explanation for lower performance measures at the secondary level may be the long term effect of exposure to remedial strategies that have emphasized working with a student's weakness. The neglect of areas of integrity for a prolonged period of time may result in a depression of these areas. Thus, instead of bringing weaknesses into closer proximity with strength, areas of strength may be reduced to more closely approximate areas of weakness.

Apparent changes in cognitive abilities as a function of age may also be the result of the assessment procedures used to measure these changes. Most measures of cognitive functioning rely on product-oriented data; that is, data which is highly dependent upon previous experience and learning. Such measures unfairly discriminate against students who have not been able to fully benefit from academic activities. Assessment procedures which emphasize the process by which one learns may be more accurate in measuring cognitive abilities, since they are not as likely to be contaminated by previous learning and experience. The work on learning potential by Budoff (1969) and Newland (1970) in psychology may provide some interesting insights to problems in assessment of cognitive abilities. Dr. Gordon R. Alley, of the University of Kansas, has applied learning potential assessment techniques to learning disabled youngsters. His preliminary findings indicate that learning disability youngsters do have normal potential even though they may appear to be functionally retarded in certain academic areas.

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*Bayesian statistics provide a means of updating probability statements about the presence of given characteristics by combining prior probabilities (which represent the state of knowledge prior to observations and data gathering) with test score data to produce revised posterior probabilities (which reflect the confidence with which learning disabilities have been identified).

Language and communication. Students who achieve in the secondary curriculum demonstrate basic integrities in reading, spelling, writing, and language. Learning disability students continue to encounter difficulties in some or all of these areas in the secondary grades.

A lack of mastery in basic reading skills is experienced by many learning disability adolescents. Hagin (1971) states that the pervasive difficulty of the learning disability adolescent is an inadequacy in dealing with symbols. This may manifest itself in difficulties with chemical symbols or the phylla in biology. One of the most comprehensive studies citing the difficulties experienced by clinic cases (ages ten to fourteen) of reading disability is reported by Doehring (1968). Her factor analysis of 79 variables related to reading indicated that the reading disability group differed in their proficiency in the various component skills that make up reading; for example, word discrimination, word recognition, decoding, etc. However, they generally tended to perform poorly on all measures of reading and spelling. The synthesis of word parts into wholes is a basic component of fluent reading. Dysfunctions in blending word elements into wholes have been found to be correlated with learning disabilities in the elementary grades (Myklebust and Boshes, 1969, DeRuiter, 1973). The syllabication test from the Gates-McKillop Reading Test (1962) was used in each of these studies. High school students have also been found to be deficient in blending ability. Using the blending test from the Stanford Diagnostic Reading Test, Level II (Karlsen, Madden, and Gardner, 1966), Deshler (1974) has found that learning disability high school students perform much more poorly than non-learning disability students. While the blending tasks used in these studies were different, the ability to synthesize word parts into wholes remained unmastered. Thus, blending dysfunction is an important factor at the high school age level because of speed being an important performance variable. The ability to quickly synthesize parts into wholes aids comprehension of content material.

Learning disability at older ages may be reflected by poor reading comprehension. Deshler (1974) has found a deficit in reading comprehension as measured by the Peabody Individual Achievement Test to be a relatively powerful indicator of learning disabilities at the high school level. In his study, students were given four tests (producing eight measures) to confirm the probability of learning disability in each student as previously determined by clinical judgment. Using performance on the PIAT reading sub-test as the only test score criterion, 61 percent of the cases were identified as learning disabled. While a large number of students met the criterion on the basis of the reading score, the results do not suggest that a reading comprehension deficit is sufficient criterion for learning disability in all cases.

Spelling difficulties usually accompany reading disabilities or problems in decoding words. Boder (1971), using a sample of youngsters aged eight through sixteen, outlined a diagnostic screening procedure in which reading and spelling were jointly analyzed as interdependent functions. Three atypical reading and spelling patterns were revealed among the dyslexic students. She found at least one of the patterns in all severely retarded readers, but none of the patterns were noted in the normal readers and spellers. Bryant and McLoughlin (1972) suggest that spelling is frequently a residual problem that remains after a child who previously had a reading problem has overcome that difficulty. Some authors have indicated that spelling is a more sensitive indicator of a language handicap because fewer means of compensation are available and because it remains at maturity. Deshler's (1974) work on high school students lends support to these notions. He has analyzed the ability of high school students to detect spelling errors in words. The results, when analyzed with a signal detection model,* indicate that the ability of the learning disability group to find spelling errors is not much better than chance performance. More importantly, virtually no overlap was noted in the performance of the learning disabled and the normal group. This suggests that the task of detecting spelling errors was extremely effective in discriminating learning disability students from normal students. On the other hand, the samples in Deshler's study evidenced considerable performance overlap on the reading measure, thus, demonstrating the persistence of spelling problems with increasing age.

A dimension of language functioning of paramount importance at the secondary level is written expression. Curriculum requirements at the secondary level rely heavily on written responses. A majority of students' performances are judged according to their ability to express themselves in writing. Notetaking and test-taking are a function of one's skills in written expression. Unfortunately, written language has been largely overlooked in the study of development and developmental deviations. The most significant contribution has been made by Myklebust in the development of the Picture Story Language Test (1965) which was designed to study written expression in normal and exceptional children. This test analyzes three dimensions of written expression: productivity (total words, total sentences, words per sentence), correctness (syntax), and ideation (degree of abstractness or concreteness of expression). Using four different age groups nine, eleven, thirteen, and fifteen, Myklebust (1973) compared the written language of a reading disabled population with a normal population. The reading disability group was found to be markedly deficient at all ages in output of written language as measured by total words written and total sentences. In most cases the reading disability group produce about one-third the output of the control group, suggesting a lack of fluency and a laboriousness in written expression. In the words per sentence score, the performance of the reading disability group was similar to the control group at ages nine, eleven, and thirteen, but at age 15 the performance dropped markedly, thus, breaking developmental linearity on this measure The reading disability group was also deficient on the syntax measures, such as correct use of tense, punctuation, and word order. An interesting trend was noted in syntax facility as a function of age. At nine years of age, the reading disabled syntax quotient was seventeen points below average, but at 11, 13, and 15 years, it was only about seven points lower. Thus, deficiencies in syntax are somewhat overcome by age eleven, but like the normals, the reading disability group reached a plateau at eleven years and evidenced few gains in syntax after this age. Finally, the reading disabled group was also retarded in their use of abstract meaning. The use of abstract meaning is closely related to language fluency and to the magnitude of the word pool available to the student. The ability to use and understand abstractness in communication is of critical importance in successfully meeting secondary curriculum demands. The fifteen year olds were markedly inferior to the normal controls on this index. Myklebust has underscored the problems encountered by reading disabled youngsters in written expression as a function of age. Deficiencies in written expression can greatly diminish a student's chances for successfully fulfilling curricular demands in the secondary schools. The need for curriculum adaptations and remediation in written expression is obvious.

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*Signal detection theory provides a means for analyzing a student's sensitivity to the presence of an error as well as the criteria used by the subject to say that an error is present or absent.

The successful completion of curriculum requirements in junior and senior high school is facilitated if students have the ability to handle the input of information that comes through lectures, directions, and normal conversation. Hagin (1971) has described the learning disability adolescent as one who may have difficulty listening in school and who may become confused in the teacher's words and be unable to take effective notes during discussions or class lectures. Myklebust (1973) has found that reading disability youngsters lack facility on tests of auditory receptive language. He noted that the reading disability group was three to four years below control on tasks requiring ability to comprehend the spoken word. On the other hand, test results on measures of auditory expressive language also showed an inferiority for the reading disability group. At fifteen years of age, this group performed with a deficit of approximately six years, when asked to give antonyms to words or when they were required to give definitions of words. In each test the performance of the reading disability group plateaued at thirteen years of age, in contrast to the normals who showed continual progression from nine through fifteen years.

A factor closely related to or included in the act of listening and auditory receptive and expressive language is vocabulary facility. Deshler (1974) has studied the ability of learning disability high school and normal students to select words which were synonyms as part of a vocabulary error detection task.

The performance of the normal group was found to be somewhat better than the learning disability group, but the ability of the learning disability group to detect vocabulary and spelling tasks may, in part, be understood by considering the nature of each task. The spelling task was one demanding more automatic type skills, whereas the vocabulary task was more cognitive in nature. One of the basic assumptions underlying the condition of learning disability is normal or near normal intelligence. Because vocabulary is highly correlated with measures of intelligence, the performance of the learning disability group on this task may be related to an intelligence factor.

Skills for independent functioning. One goal of adolescence is independence of action both in and out of the classroom. Successful social adjustment and successful classroom performance depend, in part, on the degree to which an adolescent can function autonomously. Typically, junior and senior high school students do not have the close interaction with and supervision by teachers that they enjoyed in the elementary grades. The imposed structure and organization which provided direction to students in elementary school is frequently replaced with or reduced to a subtle structure which affords more flexibility in the high school setting.

In elementary school many of the study assignments and test reviews are conducted under the watchful eye of the teacher. In the secondary grades students are expected to assume more responsibility for such activities and impose their own structure. For many youngsters with a learning disability, the absence of structure and organization and an inability to function independently can prove devastating. Success in an academic setting in junior and senior high school is largely a function of one's study skills and test taking skills. Learning disabled youngsters in secondary situations are often deficient on both accounts. Some study skills which may be absent are: planning a study schedule, doing frequent review, understanding that there is a difference between being familiar with material and knowing material, knowing who to ask for help and how to ask. Test-taking skills which may be lacking: knowing how to "psych out" the types of questions a teacher will probably ask, answering easy questions first, proper allotment of time during the testing session, answering all questions, checking answers, etc. Hudson (1974) has stressed that highly structured schedules and routines in academic settings can favorably affect school adjustment of learning disability high school students. An emphasis by teachers to help students apply an organized approach to problems and to assist them in systematic planning and following through should enhance both learning and performance.

Students' ability to function independently in an academic or social setting is facilitated if their activities are accompanied by a constant process of monitoring. The role of monitoring, or the detection of errors, in performance is a crucial one in both learning and performance. Wissink (1972) has found that learning disability specialists estimate that a monitoring deficit occurs in a learning disability population three times as often as in a non-learning disability population. To learn a skilled, highly integrated response and to perform in a competent, accurate, rapid, and expert fashion, one must respond to feedback data generated from one's own response and to external information. Siegel (1974) has suggested that a faulty feedback mechanism in older learning disability students may impede their ability to interact appropriately in social situations. Deshler (1974) has found that learning disability high school students evidenced a monitoring deficit on academic tasks which required their detection of self-generated and externally-generated errors. On a creative writing task, for example, learning disability students detected only one-third of the errors they committed. The control group detected twice as many errors on the same task. The repercussions of such performance in academic and future employment situations are obvious. Learning disabled adolescents should be made aware of the quality of their performance in written work. They should be taught monitoring strategies and instructed to be selective in their choice of words and sentences when using written expression so as to limit the number of errors committed.

This review of academic-cognitive factors suggests that a research priority of high concern is to gather data on characteristics as they relate specifically to learning and educational performance. Of equal concern is to consider those variables which relate to adequate social adjustment, as well as educational success. These will be discussed in the next section.

Personality-Social Factors

Determining the ultimate effects of a handicap in learning on the individual is difficult, if not impossible. Nevertheless, there is mounting evidence that adolescents with learning disabilities experience significant problems in social adjustment, social perception, self-concept, and motivation. Authors who have written about learning disorders in older populations have stressed the concommitant emotional and personality difficulties that beset these individuals. These accompanying difficulties warrant the full attention of those involved in the educational process of learning disabled youngsters, because such problems are potentially more of a hindrance to ultimate success and adjustment in life than the mastery of certain academic concepts. Whether these problems are the result of, the cause of, or are independent of the given learning disability, is difficult to resolve. Factors other than the learning disability per se, however, like socio-economic and family variables, are certain to influence school achievement and related emotional and personality adjustment. Failure in secondary schools should therefore be considered in light of the highly complex and dynamic pattern of relationships among variables internal and external to the learner.

A comprehensive study by Banks and Finlayson (1973) has served to clarify the effect of certain non-academic variables on failure and success in the secondary schools. This study represents a thorough attempt to come to an understanding of the relationship between social structure, parental and home practices, educational variables, and the personality of secondary aged students. While some of their findings will be used in isolation, it is important to cautiously interpret such data since the authors' intent was to look at the interrelatedness of the factors associated with success and failure in the secondary school. In summarizing their findings on twenty-nine variables studied, Banks and Finlayson concluded,

> The items . . . found to be related to success tended . . . to fall into two main clusters. First, the emotional climate of the family, parental approval and satisfaction with perceived progress, and parental aspirations were found to be interrelated with certain measures of pupil personality and motivation, . . . including dependence on adults, intellectual curiosity, homework orientation and introversion . . . . This second clustering of items suggests the possibility not only that love-oriented techniques of discipline are a factor in school achievement in so far as they influence pupil motivation, but also . . . differences in school achievement between them in patterns of child-rearing . . . disciplinary techniques was strikingly different in the successful boys . . . followed a pattern of discipline in which smacking was combined with material deprivation, shouting, nagging and telling off . . . . Parents of successful boys tended to have a warmer, more approving and less critical relationship . . . parent/child relationships and techniques of discipline were more important in differentiating between successful and unsuccessful working class parents than factors of a socio-economic nature. (p. 148-150)

These findings underscore the critical role played by family related variables in facilitating the success of high school students. Others have also noted the importance of these factors during the adolescent years. In a study comparing the family relationships of over and under achieving high school students, Morrow and Wilson (1961) have found that the parents of bright high achievers share more activities, ideas, and confidences and are more approving and encouraging with respect to achievement than the parents of bright under achieving boys. Cervantes (1965) has compared the home conditions of high school dropouts with high school graduates. He concluded that the dropout is generally the product of a family deficient in stable primary relations. Factors which were found to favor high school success were: intra-family understanding and acceptance, family encouragement of students' educational and occupational plans, communication within the home, spending joint leisure time together, and happiness within the home.

In discussing child rearing techniques with high school students, most studies suggest a linear relationship between parental authority and student achievement; that is, the more authoritarian the parents, the lower the achievement. Bronfenbrenner (1961) contends, however, that a curvilinear relationship may be a more accurate description of child rearing techniques and achievement--too much or too little discipline may have negative affects on achievement.

That special educators should direct their attention to social and emotional factors as they relate to school performance has been stressed by Hollon (1970) in his work on masked depression. He has reported that depression may be the underlying cause of poor school achievement for some adolescents. Educational efforts directed at the student to combat the depression which emphasize motivation through exhortation or criticism may only increase the depression. Instead, educators should consider adverse social or home conditions as the source of the depression and direct their intervention efforts toward these factors.

If the ability of an adolescent to effectively interact and communicate in an unfavorable social or family situation can greatly facilitate his social adjustment and happiness, then communication models which delineate strategies for coping with adverse environmental conditions should be taught to students. Dyer (1972), for example, has defined elements essential to effective communication and has contended that knowledge of such factors which interfere with communication between subordinate and authority figures can significantly enhance the communication process.

Repeated years of failure in school for learning disability youngsters, whether related to adverse social/family conditions or not, is certain to take a toll on the adolescent's personality. Siegel (1973), for example, feels that the greatest single handicap of the older learning disabled youngster is an aversive personality that repels rather than attracts people. The negative ramifications of such a personality for social adjustment, employment opportunities, and success in a school setting are evident. One's personality may be conceived as being an integrated group of emotional traits and behavioral tendencies which are largely influenced by past experiences. Some of the elements which might be considered as influencing personality development would be social perception, self-awareness, self-concept, defenses, and motivation.

The inability to accurately perceive social situations is one of the most apparent problems manifested by the older learning disabled student. Poor social perception may surface in several ways--all of which may neutralize the progress made in academic areas. Some ways in which poor social perception may manifest itself include: an inability to generalize from one situation to another; an oversensitivity to the reactions of others; an inflexibility in acting; a difficulty in accurately interpreting the moods and communications (verbal and nonverbal) of others; and a difficulty in determining the impact of one's actions on others, or, in short, a lack of self-awareness. Difficulties in social perception may actually be another manifestation of a monitoring deficit. Inability to accurately interpret and react to cues in a social setting may be the result of a faulty feedback mechanism. A prerequisite to social sophistication is an ability to monitor one's own responses and the responses of others so that one's actions might be better refined in meeting social demands.

A damaged self-concept and the development of defenses are almost certain to result from repeated failure in academic settings. Drake and Cavanaugh (1970) stress the devastating effects of failure in school settings on self-concept. Feelings of depression and even guilt were observed in learning disabled adolescents. Furthermore, they noted that continual academic failure causes students to doubt their intelligence; consequently, fears of mental subnormality develop. A student's feelings of mental inferiority may be compounded as curriculum requirements become more difficult, and the frequency of failure experiences increases. This results in a heightened fear of that failure. Russell (1974) states that adolescents with learning disabilities may suffer an identity crisis after repeated experience with failure because the feelings of inadequacy that are generated cause them to question their place in the world.

Defense mechanisms provide a means by which humans can cope with pressures. Adolescents with learning disabilities who survive for twelve years in the educational system are usually ones who have refined their defense and coping mechanisms and the ability to deploy them. Defenses may vary in form from sweet, manipulating personalities to rationalizations suggesting that the teachers are the primary reasons for lack of success. A possible danger of relying too heavily on defenses is a detachment from reality to the point of being unable to be honest with oneself. Dyer (1972) maintains that a prerequisite to "authentic behavior" is a willingness to admit weaknesses to others so as to facilitate an honest engagement of action to eliminate change, or compensate for the given weakness. He also suggests that some people hide behind facades in certain areas for such a long period of time that it becomes difficult to even talk about the precipitating weakness, let alone take actions to overcome or circumvent it. This may account for the over-sensitivity or avoidance demonstrated by some learning disabled adolescents toward the problems they encounter in school.

One of the most obvious aspects of personality associated with success or failure either at school or in later life is the presence or absence of the motivation to succeed. This factor has been analyzed in a variety of ways and under different labels. Achievement motivation, however, is a factor frequently overlooked in educational and vocational planning. Educators often incorrectly assume that all students, learning disabled included, have the same desire to achieve success in school and work. Bradfield (1970) suggests that learning disabled adolescents who have faced constant failure and frustration will have a high fear of failure and in turn evidence low motivation to achieve. Drake and Cavanaugh (1970) point out that continual failure eventually precipitates a paralysis of effort with respect to performance on academically related tasks. The empirical evidence of Banks and Finlayson (1973) basically supports these contentions. Using both projective and questionnaire measures, they found successful boys to have a significantly higher need for achievement scores than unsuccessful boys. Parental aspirations for their sons were also found to be highly related to the students' achievement motivation. In addition, internal motivation in the form of intellectual curiosity markedly favored successful boys and achievement motivation was associated with social class variables and techniques of discipline applied in the home. Obviously the study of achievement motivation as a factor of success in high school is a highly complex undertaking, since it affects and is affected by countless factors. There is an obvious need for a comprehensive theory of motivation which is applicable to education. Because motivation is multidimensional in nature, the accompanying theory and formulations for research must be equally as complex.

Whatever strategy is adopted in studying the characteristics of the adolescent with learning disabilities it must include provisions for carefully considering and integrating personality and social related variables. Their role in explaining the profile of the older learning disabled student is crucial.

Perceptual and Motor Factors

This section will discuss some of the variables that are found with greater frequency among learning disability populations than among students without handicaps. These correlates may, but do not necessarily contribute to or result from the disability itself. Some of the correlates may diminish or change as age increases but they do not vanish entirely. Although the amount of research relating specifically to secondary learning disability populations on these correlates is negligible, attention should be directed to the clinical and classroom observation of these factors to see what ramifications occur in academic performance and social adjustment. Correlates which may continue to manifest themselves in older individuals include: hyperactivity, incoordination, distractibility, poor attention, and perceptual irregularities.

Hyperactivity is one of the most frequently identified and spoken of correlates of learning disabilities. It has been defined and studied in a variety of ways. Bryant and McLoughlin (1972) note that hyperactivity generally decreases with age. In describing hyperactivity in the neurologically handicapped teenager, Wilcox (1970) notes a contrast in bodily activities between younger and older students. The behavior of a five or six year old was described as "frantic to-and-fro purposeless motor activity," whereas she notes that the behavior of an adolescent who is hyperactive is usually characterized by actions which are more subtle in nature such as finger or object tapping, grimacing, or tics. Others have noted a reduction in hyperactive behavior as subjects grow older (Schulman, Kaspar, and Throne, 1965, Werry, Weiss, Douglas, and Martin, 1966). In a follow-up study on hyperactive children, Menkes, Rowe, and Menkes (1967) have found hyperactive behavior to disappear by adolescence in all but a few cases. Werry (1968), however, stresses that though the prognosis for hyperactivity is favorable, the prognosis for overall social adjustment may not be. He also notes that preliminary results from a longitudinal study suggest that except for hyperactivity, other residual problems, such as learning difficulties, do persist into adolescence. The manifestations of factors which are sometimes caused by or associated with hyperactivity should be considered in older learning disabled students. These may include problems in attention, distractibility, or concentration.

Distractibility and poor attention to tasks also tend to improve as the student grows older. The improvement may be the result of maturation, or it may be brought about by peers who are less accepting of the interruptions which typify the behavior of younger children. Wilcox (1970) has observed, however, that the improvement in attention span noted in older students is often not sufficient for the long class periods and lectures which are common in many secondary schools. She contends that attention disorders may be manifested in two types of behavior: distracting others when attention lapses from the task at hand, or a paralysis of effort including a failure to concentrate on the given task. Rogan (1971) has highlighted a possible ramification of distractibility problems, namely, a difficulty in tuning out extraneous stimulation. Concentration may be affected by movement of other people, environmental noises, or distracting noise components in the central nervous system (Senf, 1972). This can pose particular problems for the secondary student who is expected to complete class assignments at home. If the home environment is one characterized by constant activity and no room is available for quiet, uninterrupted work, the learning disabled adolescent may experience great difficulties in concentration. Condusive home environments may not be sufficient for the learning disabled youngster who is readily distracted in internally generated stimuli, such as tangential thoughts and daydreams. School schedules which are modularized into small segments of time rather than the traditional fifty minute blocks can help concentration and other related problems.

Fine and gross motor coordination also improve in the teenage years with maturation (Wilcox, 1970, Siegel, 1974), but significant problems may still persist. Deshler (1974), for example, notes that the writing samples of learning disability high schoolers were generally more illegible and evidenced poor spacing and cramping. Notetaking in classes may be impaired because of a laboriousness in writing. Typing has frequently been proposed as an alternative communication vehicle for the handicapped student. The perceptual and coordination demands of typing, however, may preclude it as a viable solution for many learning disability youngsters. Gross motor difficulties may be detected through clumsiness in physical education activities or social activities such as dancing. Myklebust (1973) administered the Health Railwalking Test (designed to measure locomotor coordination) to normal and reading disability children. The poor readers in the thirteen and fifteen year old groups performed approximately 20 percent below the normal controls. He found that disturbances in locomotor coordination remained deficient to about the same degree from ages nine to fifteen. Poor performance resulting from incoordination problems may confirm a student's feeling of not fitting in with the physical world and further hamper his self-esteem.

Perceptual irregularities, like other correlates discussed above, appear to improve with age. Effective compensation for or avoidance of certain activities may partially disguise perceptual deficits in the teenage years. For example, students may not choose mechanical drawing as an elective because of poor depth perception, or they may learn to handle left-right discrimination problems by relying on a mole that is on their right hand for a cue. Problems with time perception may be particularly devastating to older learning disability students because of the numerous schedules which must be adhered to in the school and everyday life routine. For example, there are different due dates for assignments in each of four classes, students must get to class on time for each of the periods during the school day, doctor's appointments must be met, etc., without the constant supervision available in younger years.

All of the factors discussed in this section show a general improvement with age. An important point to remember, however, is that the non-handicapped population also demonstrates refinements and improvements with maturation. The crucial consideration therefore, is whether the improvement evidenced by the learning disability adolescent is sufficient to change both self-perceptions and the way others perceive him.

Summary and Future Directions

The shortage of empirical data relating to characteristics of learning disabled adolescents is evident. Much of what we suspect and believe concerning these characteristics is based upon clinical and classroom impressions. However, as the means become available to provide services to all exceptional individuals, through legislation mandates, a refinement of our understanding of psycho-social characteristics becomes essential. The present paucity of data on characteristics makes it difficult to determine a complete learning, social, and emotional profile of the learning disabled adolescent. Thus, caution should be exercised in making generalizations concerning the older student. A partial profile, however, of the adolescent with learning disabilities is beginning to emerge.

First, the performance profile of the learning disabled adolescent reflects a pattern of both strengths and weaknesses. Since some areas of functioning are within normal limits the educational treatment and prognosis suggested for these youngsters is markedly different from that indicated for youngsters with a profile that is suppressed in all areas of functioning.

Second, many skills basic to the academic process are still lacking or have been incorrectly acquired. Success in the academic curriculum will be limited until sufficient survival skills and techniques are mastered which will allow the student to function independently in an academic setting.

Third, by adolescence there is a high probability that learning disabled students will experience the indirect effects of a learning handicap as manifested by poor self-perception, lowered self-concept, or reduced motivation. While disability in a basic learning process may be the root problem, it must be considered in relation to other problems which it may precipitate.

Finally, maturation and/or compensation tends to refine and integrate many psychological, perceptual, and motor functions. Consequently, problems of incoordination, hyperactivity, distractibility, and poor attention may manifest themselves in more subtle or controlled ways in older students. Still to be resolved, however, is whether these functions are refined significantly through maturation and/or compensation, so as to become normal behaviors rather than remaining as deviant characteristics.

There are a multitude of research and theoretical needs relating to characteristics of learning disabled populations. Some of these are outlined on the following page:

1. For research efforts to be productive in delineating and clarifying learning disability characteristics at the secondary level, research samples must be carefully defined. Criteria for inclusion and exclusion must be described in detail. Such procedures will facilitate the comparison and replication of research findings as well as the operational definition of the population.

2. Research on characteristics should analyze the performance of the learning disabled population in comparison with adolescents exhibiting other handicaps as well as normals. Psycho-social variables should also be studied at different ages during the adolescent period to determine the effect of age on given characteristics. The high degree of interrelatedness among characteristics must be accounted for in the study of academic and non-academic factors. Variables in each grouping should be carefully identified and the relative importance on academic performance and social adjustment determined.

3. Research in learning disabilities should be conducted with an awareness of what has been accomplished in disciplines outside the field of special education. For example, the knowledge available in psychology, guidance and counseling, and psychiatry should be tapped to help provide answers to problems which are not specifically educational or curriculum related. The integration and application of knowledge from other fields will broaden our understanding of some of the problems faced by learning disabled adolescents.

4. An ultimate goal of special education is to generate a smooth interface between learner characteristics and treatment variables. It is imperative, therefore, that research on learning disability characteristics be conceptualized and conducted in the context of the secondary curriculum. Only when treatment variables and learner characteristics are treated concomitantly will the questions relating to each area be adequately answered.

5. The complex nature of learning disability characteristics dictates that the research methodologies and theoretical conceptualizations be sufficiently sophisticated to deal with that complexity. The study of learning disabled characteristics would be advanced if it were guided by a theory or framework which would provide a structure for analyzing research data and a source for generating systematic research questions. Senf (1972) has indicated the pressing need for such a framework in the study of abnormal functioning,

> In order to understand abnormal functioning, it would be useful to have a theory substantiated by experiments which describes the course and functioning of normal behavior. Such a theory together with its supporting factual data would allow us to understand precisely where abnormality is centered. By examining the functioning of the person thought to be disabled in some way we would be able to decipher where his performance varies from that of the normally functioning individual. Such performance differences would imply within the context of the theory processes or systems which are functioning irregularly. . . .It should be clear why a theory is

> necessary in this endeavor and that a collection of unorganized facts will not suffice. Most basically, one need recognize that there are an endless number of data points that one could collect that would discriminate between any two samples of persons. Understanding deviant functioning . . . proceeds not simply by having a large collection of data but by having those data organized into a coherent framework. A framework allows some data to take on more importance in understanding the disability than others by specifying the manner in which the data are related to each other. (p. 305)

Kass's (1974) theory of learning disability which was developed to account for abnormal functioning in five psychological functions (sensory orientation, memory, recognition, expression, and integration) and four states of awareness (sensory awareness, labeling, defining, and integrating) is an example of the type of comprehensive framework needed to study the complexity of variables involved in learning disabilities.

6. The questions confronting the field may best be answered through the application of research methodologies which are capable of handling a large number of variables in a sophisticated fashion. The simple analysis of a limited number of factors in a correlational format, for example, will not provide self-sufficient answers to the presenting problems.

7. Few researchers or authors have emphasized areas of strength in the learning disabled adolescent. Most characteristics are defined in terms of weakness rather than considering integrities which are available for compensating for the deficit or circumventing it. Research efforts should therefore shift from a concentrated emphasis on weakness to an exploration of strengths.

In conclusion, let us briefly turn our attention to the issue of educational services for learning disabled adolescents. The past few years have witnessed a dramatic growth in interest in learning disabilities at the secondary level. Our eagerness to assist an age group that has been denied services for years has often resulted in hasty and sometimes shortsighted decisions. While youngsters in need of help at the secondary level cannot wait for research to provide definitive answers on crucial issues should they be expected to endure educational programs and service alternatives that have been conceived on limited knowledge and questionable assumptions? For example, many secondary programs for learning disabled students are merely an extension of the same service models used for elementary children. While some of these may be valid, they should not be applied in a blanket fashion to older populations. For the most part, questions of optimal service arrangements and curriculum alternatives are still unanswered. Thus, to make the same assumptions about secondary students as are made about elementary children is to ignore the critical changes that occur in the developmental process. Likewise, to serve all secondary students who are failing the secondary curriculum in the same service arrangement with similar goals is to deny their individuality. As handicapped students grow older, some of the factors that defined their differences at earlier ages may be reduced or become less distinguishable. These similarities should be identified and considered in educational programming. On the other hand, increased age does not remove all elements of difference between various handicapping conditions; this too should be recognized and considered in educational decision making.

Consequently, service delivery at the secondary level is, in part, contingent upon a knowledge of the salient characteristics of the learner. To this end a research priority of high concern in the field of learning disabilities should be to more clearly understand and identify psycho-social characteristics. Such a delineation of characteristics would provide the basis for sound decision making on educational programming for learning disabled adolescents.

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READING PROBLEMS OF THE SECONDARY LEARNING DISABLED STUDENT

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Learning disabled children and youth have frequently been characterized in the literature as possessing reading difficulties, although they need not exhibit reading problems in order to be designated learning disabled. Most often, reading problems of the learning disabled are characterized as being a symptom of a language or perceptual deficit, and reading achievement has been correlated with a number of symptoms frequently found in the learning disabled, e.g., memory problems. Although there is a considerable amount of literature concerning the reading achievement of the learning disabled child, much less has been written about the reading characteristics of the adolescent learning disabled. When attempting to describe the reading characteristics of the adolescent learning disabled several critical issues which apply to the younger learning disabled children as well must be considered. These are, (1) criteria for the selection of learning disabled adolescents and children vary widely, (2) investigators who have attempted to describe the reading characteristics of learning disabled children and youth differ in their interpretation of the reading process, (3) assessment instruments utilized for detecting reading difficulties differ in interpretation of the reading process and also lack validity and reliability in most instances, and (4) most of the reading characteristics ascribed to learning disabled children and adolescents are the result of clinical observations rather than rigorous empirical evidence.

IDENTIFICATION ISSUES IN LEARNING DISABILITIES

Differentiating the learning disabled (dyslexic, specific reading disabled, etc.,) from those who have reading difficulties has been a problem facing those involved in differential diagnosis and programming (Orlando, 1973, Sartain, 1972). Not all reading failure has been attributed to specific learning disabilities.

Often the learning disabled child who exhibits severe reading disorders is called "dyslexic" (Johnson and Myklebust, 1965, 1967, Isom, 1969, Money, 1963, Critchley, 1964, 1968, Samuels, 1973). Literally the term dyslexic means the inability to cope with symbols or words. This term has been used most often by those people outside the field of reading, e.g., neurologists, pediatricians, physicians, and optometrists, in order to describe reading failure. Among the characteristics ascribed to dyslexic children have been perceptual-motor problems, left-right confusion, memory problems, spelling difficulties, strephosymbolia (twisted symbols), and the indication of heredity as a factor in the cause of such difficulties (Bannatyne, 1971, Money, 1962, Shedd, 1966, Critchley, 1964, Hearns, 1969, Johnson and Myklebust, 1965).

There is no clear cut evidence to support a direct relationship between dyslexia, neurological impairment, and reading failure (Howard, 1969). Moreover, there has been a great deal of confusion and controversy over the term dyslexia (sometimes referred to as specific reading disability).

Satz and Sparrow (1970) discussed the problem of interpreting research studies which have been conducted on dyslexics. They stated,

> Much of our current confusion over this disorder is due to deficits in experimental design and methodology. Numerous studies have been based on heterogenous clinic samples which comprise children from socially and educationally deprived areas, many of whom have neurologic abnormalities, sensory handicaps, emotional problems or even impaired intelligence. By definition, these studies are unrepresentative of developmental dyslexia. Belmont and Birch (1966) have also criticized the use of small sample sizes, wide age ranges, and inappropriate control group. Critical reviews of these problems is presented elsewhere. (Belmont and Birch, 1966, p. 18)

The reader is referred to Adams (1969), Rutter and Gully (1973), and Lerner (1975) for a comprehensive discussion of dyslexia.

Such is the "state of the art" in research dealing with children who have been labeled learning or specific learning disabled (Wepman, et al., 1975). The reader is referred to the paper on language and learning disabilities (Sitko and Gillespie, 1975) for a more extensive discussion of definitional problems in the field of learning disabilities.

MODELS OF READING PROCESS AND LEARNING DISABILITIES

Reading educators vary immensely in their interpretation of the reading process. One has only to enumerate the many different approaches to teaching reading that are presently available commercially and otherwise, in order to depict this phenomenon. On this topic, Blanton (1973) stated,

> As a primary form of information processing in literate societies, reading is one of the more complex acts performed by man. Educators have been constantly challenged to explicate the reading process and to determine how reading skill is learned; and more recently, members of related disciplines have developed an interest in reading. Consequently, a great amount of information concerning reading has accumulated. One might expect that we have an adequate theory to explain how the complex process we call reading is either acquired or functions. This is not the case, however. (p. 115)

Williams (1973) in reviewing past and current practices in reading has placed theories of models of reading into the following categories: (1) taxonomic models, (2) psychometric models, (3) psychological models, (4) linguistic models, and (5) transactional models. Those educators in learning disabilities appear to have, perhaps unknowingly, adopted several of these models. Several models which seem to be prevalent in clinical and empirical evidence of reading characteristics of the learning disabled are the taxonomic, psychometric, and psychological.

Taxonomic models. These models categorize reading skills according to word perception (pronunciation and meaning), comprehension, and assimilation of what is read through the incorporation of experiences held by the child and information obtained from reading. Many of the reading tests, e.g., Gray Oral Reading Test and programs currently being used with learning disabled children and adolescents reflect components of this model.

Psychometric models. An attempt to identify variables and sub-variables that contribute to the variance in reading comprehension is the psychometric model of reading. In describing this model Williams stated,

> The goal is to determine the nature of the combination of the hierarchically organized subsystems that form a working system for attaining speed and power of reading. (Williams, 1973, p. 125)

A variety of tests are chosen for such an attempt, e.g., measures of auditory and visual perception. First, a set of variables is chosen from a theory or past research. Those variables that may account for most of the variance are then reanalyzed for sub-variables, e.g., from auditory discrimination to discrimination of medial sounds, and so forth.

Much research has been conducted in the area of language, auditory and visual discrimination, visual and auditory memory, auditory-visual integration, intelligence, and attention in order to determine the relationship between these variables and reading achievement. This type of research abounds in the field of learning disabilities, e.g., Birch and Belmont (1964), Frostig (1963), Johnson and Myklebust (1965), Kass (1963), Money (1966), Samuels (1973), and Staz and Friel (1974). In addition, patterns of performance of brain-injured and dyslexic children on the WISC have been studied (Clements and Peters, 1962). The development of psychometric measures such as the ITPA and the Developmental Test of Visual Perception (Frostig and Horne, 1968) and emphasis on perception, attention, memory, and other "reading correlates" composes a large portion of the research in reading and the learning disabled.

Although many studies attempting to define correlates of reading do not utilize psychometric devices, they possess a commonality with others in that they are investigating variables and sub-variables that may account for the variance in reading achievement. Such factors as experiential background, general health, visual and auditory defects, speech impairments, motor disturbances, intelligence, language skills, visual and auditory perception, perceptual-motor skills, and emotional and social adjustment have been related to reading achievement (Gillespie and Johnson, 1974). Many, if not all, of these characteristics have been found to exist in children who have been labeled learning disabled.

In the field of learning disabilities some of these characteristics attributed to learning disabled children have been cited as possible causes or correlates of their reading disability, e.g., poor memory (Kass, 1963), difficulty in integration of auditory and visual stimuli (Birch and Belmont, 1964, Beery, 1967), memory factors (VandeVoort and Senf, 1973, Ellehammer, 1967), attentional deficits (Lahaderne, 1968), sequencing difficulties (McLeod, 1967), language difficulties (Myklebust, 1973), and deficient information-organization processing (Senf, 1971).

Although an extensive amount of research has been conducted in order to determine causes of reading failure, at the present time no conclusive results have been formulated. In addition, many studies of reading disability include variables that have little direct connection with the reading process per se (Samuels, 1973). Samuels summarized the shortcomings of research on causes of reading difficulties,

> Despite an impressive amount of research on causes of reading retardation, the bulk of the research fails to add up to much: a) the research has been piecemeal in its approach rather than systematic; b) the matched group designs generally used in these studies were inadequate; c) the students were used for research after they had been identified as having a reading problem rather than before, thus masking what is cause and what is effect; d) numerous studies have investigated variables which are not components of a learning model of reading acquisition; e) diagnostic labels were used, implying that causes of the reading problem were known, and f) sources of unreliability in achievement expectancy formulae, reading achievement tests, and intelligence tests have resulted in invalid research results and conclusions. (p. 208)

In summary, the relationship of such factors as auditory and visual discrimination, memory, perceptual motor achievement, attention, and auditory-visual motor integration with reading achievement has shown positive correlations. These correlations have been low for the most part, and therefore have accounted for little of the total variance in reading achievement scores. Furthermore, the exact nature of the relationship between these reading correlates and reading achievement has not been clearly delineated at the present time, even though the literature is replete with attempts to explain the reading failure. For a thorough discussion of this research the reader is referred to Samuels (1973).

Psychological models. Williams characterizes the psychological model as one that has been influenced by psychologists interested in the reading process. She places Skinner (1957), Stauss, Schutz, and Wolf (1962), and Gagne (1970) in the behavioral approaches category; Gibson (1970), Elkind (Elkind, Horn, and Schneider, 1965) in the cognitive category, and Venesky and Calfee (1970) in the information processing category. Briefly, the behavioral psychologists view reading as operant learning with the reading response being attached to a specific textual cue. "The strengthening of this association occurs via the mechanism of reinforcement . . ." (Bloom, 1973, p. 149). Reinforcement includes discrimination training in that specific verbal responses are reinforced as they occur with certain visual stimuli. Shaping is an integral part of the teaching of reading and writing in this approach.

In the field of reading and learning disabilities certain approaches, e.g., programmed reading and programmed tutoring, have incorporated these learning principles. Materials for special populations including the learning disabled, Bijou and associates (1972), Fitzhugh and Fitzhugh (1966), and Woodcock (1969) employ discrimination learning and reinforcement (Woolman, 1965). The engineered classroom (Hewett, 1963) and environments established by Haring and Hauch (1969) have been used as vehicles for teaching learning disabled children to read.

Williams and Gibson (1970) have developed an organized interpretation of reading which combines the elements of language, i.e., phonological in semantics, and syntactic with the distinctive features of the graphic symbols. The child learns the distinctive shapes of the letters, and employs systematic scanning in an active process of comparing and selecting appropriate cues. As the child acquires more cues, she/he inductively groups these cues into larger units of information. She/he then uses this information in reading larger, more efficient units, e.g., phrases; rules of information are correspondents between graphemic and phonemic systems; rules of orthography, e.g., structural analysis, grammar, and meaning. Gibson recommends that training in reading be within a rule-oriented framework.

Gibson's research in the area of distinctive features of letters offers much potential for the development of instructional strategies for problem readers. In a review of visual memory of poor and good reading, Samuels (1973) concluded that the superior visual memory of a good reader is due to his/her ability to attend to distinctive features and encode them verbally. Gibson, et al., (1963), Popp (1964), and Guralnick (1972) have provided means for analyzing the characteristics of letters that attribute to confusion among poor readers.

Many investigators in the field of learning disabilities have discussed the visual discrimination problems of learning disabled children. Gibson's contribution to this area is unique and offers much potential for the development of instructional strategies because of her specificity of analysis of graphic forms.

Another cognitive psychologist is David Elkind, whose approach is oriented toward Piagetian theory. Elkind's theory of reading is a developmental one which emphasizes the perceptual components of reading. The perceptual processes embody logical operation, e.g., understanding grammatical structures. As the child matures, she/he is not dependent solely upon the visual perceptual aspects of reading. Elkind stresses the sensory-motor methods in remediation in order to facilitate the internalized actions of perceptual activities. For the most part, reading instruction in learning disabilities stresses the perceptual aspects of reading as well as sensor-motor training. Perhaps the descriptions of learning disabled children's inability in visual perceptual tasks could be explained in developmental terms in that the child is attending solely to the perceptual rather than the cognitive tasks of reading. A summary of Piaget's views of the development of mathematical concepts presented by Lovell (1961) may hold true for the reading difficulties of some children,

> For Piaget, perceptions and associated images will not provide the concept of a group, because as we have seen, they are rigid, irreversible and cannot be arranged in various ways. Later, the child's thoughts will be more maneuverable or operational. . . . (p. 47)

Thus while the child is centering his/her attention of a visual characteristic of a word, she/he may lose sight of the contextual meaning conveyed by the passage.

The information processing models which Williams (1973) characterized as psychological models, are ones that have recently received attention in the field of special education. Investigators in special education, e.g., Sabatino (1968, 1970), Young and Lindsley (1970), Van Meel, Vick, and Bruijil (1970) have related information processing to reading. Such tests as the ITPA have incorporated measures for these information processes, i.e., receptive, integrative, and expressive. The ability of children and adolescents classified as retarded to organize verbal input for retrieval during the act of reading has been explored recently by Bilsky and Evans (1970), Evans (1970), and Blanton (1974), and reviewed by Blanton, Sitko, and Gillespie (in press).

Information processing has been related directly to reading. Because many of the models include linguistic features, we have combined the information processing and linguistic models for the purposes of this discussion. Specifically related to information processing, Venesky and Calfee (1970) describe input and output in terms of visual scanning, i.e., the child scans for large manageable units such as phrase boundaries and then decodes (output). An integration stage of syntactic semantic features is included. Similarly, Van Meel, Vlek, and Bruijel (1970) speculated that reading problems may be the result of an incorrect, incomplete scanning procedure. In their studies with children with learning difficulties, they conclude that when the complexity of the visual discrimination task increases, the performance of the learning disabled child is comparatively more hampered (p. 112).

Smith (1971) is an investigator in the field of reading that has combined elements of language and information processing in order to explain the reading process. Smith describes the competent reader as one who tests a number of features that extends beyond the discrete visual features of the printed material. A reader may not necessarily need to attend to all the visual features, i.e., letter identification of a word, in order to identify the word. In deriving meaning from the text, the child combines visual configuration and context. Syntactic and semantic redundancy which exists within sequences of words is utilized in obtaining meaning: the reader moves directly from the visual features of the material to the meaning by simultaneously combining information derived from the surface and deep structure of the language, and discriminating visual features of the words. The reader samples the visual features of the words, utilizing unique visual characteristics of the configurations in order to eliminate alternative responses. Syntax or surface meaning is utilized as a cue to the deep structure of the printed material.

Smith (1971) describes the poor reader as one who is not able to fully use the syntactic and semantic redundancy of the material. She/he may require a maximum of visual information and may find it necessary to obtain meaning from surface structure. This procedure of attending to all visual features of the material as well as surface structures may hinder comprehension. This slow and laborious process may tax the child's short term memory. Rather than describing the units, the competent reader surveys larger units, e.g., phrases, in order to obtain meaning. Other investigators have supported Smith's position that competent readers process information from larger units for information rather than discrete ones (Bower, 1970, Cromer, 1970).

Similarly, Ryan and Semmel (1967) have emphasized the importance of language processing strategies in beginning and mature reading. They contend that reading can be viewed as a "constructive active process in which the reader uses his cognitive and linguistic knowledge to reproduce a probable utterance from a careful sampling of cues and then matches that prediction for appropriateness" (p. 81). Emphasis is focused on "conceptual" aspects of reading more than units or single words.

The role of language processing in reading has been described by Neisser (1967) who described reading as externally guided thought in which the stimulus, rather than determining perception, serves as a prompter for an ongoing language process. Other aspects of the linguistic features, i.e., intonation (pitch, juncture, stress), of clauses and sentences has been stressed by Lefreve (1964).

Although Goodman (1965, 1968, 1972) is placed in the linguistic models category by Williams, his views on the reading possess many characteristics similar to the information-processing theorists. For example, according to Goodman (1968) the reading process is a matter of recoding, decoding, and encoding. In recoding, the child merely "re-codes" the graphic symbols into aural symbols. This does not mean that the child understands or "decodes" the graphic message. Encoding involves obtaining the meaning while reading orally. If the child is reading silently, she/he must decode or obtain meaning and then encode meaning as oral output when asked to read orally. Goodman (1972) calls reading a psycholinguistic guessing game which uses language cues selected from perceptual input. In order for the child to engage in the reading process, she/he must be able to possess language information that is encoded in graphic symbols. Moreover, Goodman (1965, 1968, 1969, 1972) has designated 'cue systems' that must be used by the reader in obtaining meaning from written language. He considers "miscues" in oral reading to be very important to the teacher because they provide information about the child's language skills. Cues may be based upon (a) written words, (b) the flow of the language in terms of operations such as function order, inflection, or inflectional agreement, intonation or reference to what comes prior to or after the word in question, and (c) cues external to the language and the readers such as his/her dialect, experimental, and family background (Goodman, 1968). If error analysis of a child's reading miscues is qualitative rather than quantitative, the teacher will be able to use oral reading as a means of assessing the language strategies a child employs while engaged in the reading process. The Reading Miscue Inventory developed by Burke and Goodman (1972) is one source for a qualitative analysis of a child's miscues and could serve as a framework for the study of learning disabled children and adolescents' cueing systems. Levitt (1972) has conducted research on the qualitative differences of retarded children's reading responses as compared to competent readers. Such research is needed in the field of learning disabilities.

In summary, although there are many interpretations of the reading process, investigators in the field of reading appear to be progressing toward an organized and integrated framework of reading. According to Blanton (1973) future research in reading will require a "commitment on the part of the reading researcher to long periods of investigation on carefully selected issues requiring up to ten years research to unravel" (p. 118). He further suggests communication among researchers. This last point should be emphasized. Investigators in the field of learning disabilities appear to be adhering, in many cases, to outmoded interpretations of the reading process. Furthermore, reading researchers have not typically expressed an interest in the syndromes such as dyslexia and minimal brain damage. They view these labels as confusing and as adding little to the development of instructional strategies (Lerner, 1975). Because of the separateness of the two fields, both disciplines are guilty of ignoring large bodies of research that may benefit children and adolescents who have been identified as "disabled readers."

ASSESSMENT IN READING

Investigators who attempt to describe the reading attainment level and reading characteristics of learning disabled adolescents and children are faced with a host of norm inferenced instruments from which to choose. Most of these standardized group and individual diagnostic tests are designed for the elementary grades, although many are available on the secondary level as well. For a comprehensive list and description of reading tests on the secondary level, the reader is referred to Maurogenes et al., (1974). Many reading tests, including those described by Maurogenes et al., (1974), have been criticized for their lack of validity and reliability for all levels of achievement (Lenmon, 1967, Farr and Tuinman, 1972, and Samuels, 1973). Other criticisms of standardized reading tests are that they do not account for the guess factors, especially group standardized tests (Fry, 1971) and that these tests do not correlate with other reading tests. As a result, varying diagnoses occur, depending upon the tests administered (Froesco, 1971). Moreover, a majority of these tests adhere to a taxonomic model of reading; therefore the researcher reports the word recognition level, the oral and silent reading level, listening comprehension, phonetic analysis, and measurement of reading rate, rather than information such as strategies utilized by the child while reading.

Furthermore, in identifying children with learning disabilities, reading scores have been included among other sources, such as IQ, in order to determine learning quotients or reading expectancies. Many formulae have been developed for the purpose of determining the child's reading expectancy. However, the main criticism of reading formulae, or other procedures used to estimate the child's reading potential, is that the amount of reading retardation depends upon the formula or procedure used (Reed, 1970, Simmons and Shapiro, 1968). Thus a child may be classified learning disabled in one study but not another if different formulae are employed.

Recently, reading educators have developed criterion referenced tests in order to assess reading skills. Such tests are the outgrowth of a behavioristic task analytic approach to reading skills, which has as its emphasis specific educational tasks (Bateman, 1966-1967). For an explanation of criterion referenced testing in reading, the reader is referred to Prescott (1971). Criterion referenced tests do more than measure global skills as general reading level (Johnson and Kress, 1971). Because they require specificity, careful analysis of tasks is necessary. However, criterion referenced testing is not without flaws. According to Prescott (1971) one important assumption of criterion-referenced assessment is that the skills to be measured can be placed in a hierarchy. This assumption creates a problem in reading because there is no clear empirical evidence of a progression of learning how to read. Although criterion referenced testing is more absolute than standardized tests which measure a child's ability only in relation to that of another child, they still require a "base of reference" (Prescott, 1971, p. 350). The decision to place a test at a certain level implies that a certain response is expected from the child. The response is judged upon some criterion which has been considered typical for a certain age or capacity. Hence, norming is still involved.

Although, criterion referenced testing has limitations, it has promise for the development of instructional strategies for learning disabled and retarded children (Proger and Mann, 1973, Gillespie and Johnson, 1974). If adopted, this approach to reading assessment will necessitate a great deal of planning and preparation (Proger and Mann, 1973).

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retarded children (Proger and Mann, 1973, Gillespie and Johnson, 1974). If adopted, this approach to reading assessment will necessitate a great deal of planning and preparation (Proger and Mann, 1973).

In conclusion, such problems on the lack of reliability and validity of assessment instruments confound results concerning the reading characteristics of learning disabled children and adolescents. Recent development in criterion referenced testing may prove more promising than reading assessment based on norm referenced measures.

READING CHARACTERISTICS OF THE LEARNING DISABLED ADOLESCENT

Clinical observations. Many researchers in the field of learning disabilities have cited reading as being a problem for learning disabled children and adolescents. Reading disabilities have been included in the specific learning problems of special groups of adolescents, particularly the juvenile delinquent (Tarnopol, 1969, Kline, 1972, Duling, et al., 1970). Much evidence of the exact nature of the reading problem has been presented via relatively vague clinical evidence rather than empirical data. Case studies of learning disabled have been presented in a majority of the literature.

Critchley (1964) presented clinical manifestations of developmental dyslexia which he described as a "specific syndrome wherein particular difficulty exists in learning the conventional meaning of verbal symbols, and of associating the sound with symbol in appropriate fashions" (p. 18). He attributed the inability to read to a symptom which he characterized as a higher order deficit in cognitive processing. Critchley presented empirical and clinical evidence concerning the reading characteristics of dyslexics. He cited an early study (Bachman, 1927) which found that the reading rate of dyslexics was significantly slower (1 to 6 times) than that of normal readers. Critchley also presented an extensive classification of oral reading errors of dyslexics, e.g., inability to pronounce a word, wild guessing, auditory discrimination of the sounds of letters and words, problems in keeping place while reading, vocalizing while reading silently, incorrect pronunciation of vowels and consonants, and reversals--such as saw for was. Other anomalies described by Critchley were seeing letters in isolation with no association of sound and symbol such as a capital X described as a sawing-trestle. Similar clinical findings have been described by Boder (1966). She emphasized that normal children may possess such characteristics but children with specific dyslexia commit them more often and far beyond the time which they became uncommon in normal readers. Critchley described older dyslexics who had overcome their reading disability to some extent. However, he concluded, that if left unassisted many would become functional illiterates.

Orton (1937) termed severe reading problems as "developmental alexia" (congenital word blindness, streposymbolia, specific reading disability)" (p. 69). Orton described clinical cases as developmental alexia. A summary of characteristics are as follows: inability to recognize words at sight compared to normal readers; a wide range of letter confusions, reversals (saw-was); poor association between letter and sound; omissions of small words which may change the meaning of the test; and auditory discrimination difficulties. Orton (1937) found these characteristics in older dyslexics as well as young children. Those adolescents who had a history of severe reading disability were unable to gain meaning from long sentences or paragraphs. Orton described the silent and oral reading problems of adolescents,

> The real reading in such cases is apt to be jerky, word by word procedure with very little emphasis demanded by major and dependent clauses, giving the impression that while each unit of the longer phrases and sentences is grasped, the grammatical sequence and hence comprehension are far from facile. These children complain of the time required to cover reading assignments with understanding and of the frequent need of rereading or even of more or less analyzing their required reading before being able to comprehend it thoroughly.

Many clinical manifestations found in the literature concur with Orton, Critchley, and Boder's observations, e.g., Wilson, 1970, Bryant, 1969, Gallagher, 1969. Other clinical manifestations of reading difficulties of adolescent learning disabled are as follows: lack of basic sight vocabulary and phonic recognition (Rabinovitch, 1962); inability to process material sequentially via the auditory channel and lack of adequate mnemonic or automatic memory (Isom, 1969); incomplete memory of the letters of the alphabet (Carner, 1969); inability to recall specific words in oral reading and to visualize objects, words, or letters (Johnson and Myklebust, 1965, 1967); and difficulty in internal design and visual spatial patterns (deHirsch, 1963).

Selected studies. Little empirical evidence of the reading characteristics of the learning disabled adolescent exists in the literature. Many clinicians have reported observations of the reading characteristics of those seen in clinical settings rather than considering the significant differences between learning disabled readers and normal readers. As stated previously, many of the studies that have been conducted suffer from the problems of designs, measures used, criteria for identification, and so forth. Because of the heterogenity of the children included in the studies, caution must be taken in drawing conclusions concerning specific reading characteristics.

A myriad of studies concerning the characteristics of children labeled poor readers have been found in the literature. Fewer studies have been conducted on those children and adolescents labeled learning disabled. Of the studies that have been conducted, the investigators have most often labeled the children dyslexic rather than learning disabled. A selected series of these studies is presented here.

In a descriptive study. Johnson and Myklebust (1965) investigated the reading characteristics of 60 dyslexics, ages seven to eighteen, who were referred to the Institute for Language Disorders because of school difficulties.

To Johnson and Myklebust, dyslexia is defined as more than a reading disorder but part of a basic language disability. Children and adolescents who exhibit primary aphasic symptoms or were slow learners were not included in the study. Twenty four of the subjects were adolescents. No control group was used. The mean intelligence quotient for the group on the WISC or the WAIS was 103.9 with a range of 89 to 129. Reading grades for oral reading, reading vocabulary, and comprehension were obtained. Reading quotients were calculated for the group and were found to be substantially below average compared to the intelligence quotients. Other tests administered were as follows: the Detroit Test of Learning Aptitude, an informal measure of memory; left-right orientation, body-image, and body concept; spelling measure laterally; and the EEG and neurological examination. As a group, the dyslexics, including the adolescents, were found to possess memory impairments as defined by the digit span sub-test of the WISC and WAIS and the memory sub-test of the Detroit Test of Learning Aptitude, as well as informal measures, e.g., repeating the months of the year and the alphabet in sequence. Mental age scores as determined by the drawings of the human figure on the Goodenough Draw-a-Man Test were below the chronological and mental age levels. There were problems with numerical symbols and positive funding of neurological dysfunction (90 percent of the cases). Parenthetically, abnormal EEG readings of dyslexic readers have been found by Agnes and Tarrer (1967), Liberson (1966), Vogel and Brovermann (1964); however, the evidence that learning disabilities and dyslexic readers have abnormal EEG's is not conclusive (Koppitz, 1971, Hartlendge and Green, 1973, Bender, 1970).

In this study, a presentation of the nature of the reading difficulties were presented case by case. Johnson and Myklebust observed problems such as reauditoring while reading, inability to distinguish differences in letter sounds of syllables, and difficulties in sound blending. They categorize three types of dyslexic readers, (1) visual dyslexics who have problems in discrimination of words and retaining visual images, (2) auditory dyslexics who have adequate visual skills but are characterized as having problems with auditory discrimination blending and auditory memory, and (3) those dyslexics who have difficulty integrating the auditory and visual stimuli.

Boder (1970, 1971), who also has studied the reading patterns of dyslexic children and adolescents, uses three similar characterizations of reading disorders. In studying dyslexics from eight to eighteen, she found three types of reading problems. The first category is dysphonetic, which is the primary deficit in letter sound integration and the inability to develop phonetic skills. Spellings are nonphonetic and unintelligible. Substitutions in reading are typified by funny for laugh, airplane for train, etc. The second group is called the dyseidetic group which refers to a primary deficit in the ability to perceive whole words as gestalts (Boder, 1970, p. 289). They read phonetically rather than by sight. The last category is a combination of both dysphonetic and dyseidetic. She classified this category as being the most serious reading disorder.

In a study by Naidoo (1972) of reading achievement of 98 specific dyslexic boys, ages 8 to 13, the boys were divided into those possessing reading retardation and those possessing spelling retardation. A control group of 98 boys matched for age, types of school, and class background were used. Naidoo defined dyslexia as "a condition causing difficulty in learning to read and spell in physically normal intelligent children in spite of continuous schooling and in the absence of severe emotional problems" (p. 24).

Naidoo found the dyslexic boys were reading at least two years below their chronological age. The control group was reading at grade level or advance of their chronological age. (This finding is no surprise to us considering Naidoo had identified boys who had come to the Word Blind Center, whose staff chose as their criteria for labeling word blind children as those who had severe reading problems.) Scores from standardized word recognition and reading comprehension tests were obtained. Significant differences were found in reading accuracy, rate, word recognition, and reading comprehension as measured by these tests. Sound blending of the reading retardates as measured by an informal test was found to be significantly below the control group's ability to blend words. The majority of the dyslexic boys were able to blend sounds at the age of 11 years whereas most of the controls were able to do so at eight years of age.

A study included here because of its incorporation of adolescents and developmental sequences of reading achievement was conducted by Myklebust (1973). Although the children were not labeled dyslexic or learning disabled, they had been classified by the schools as reading disabled and were in remedial reading classes. A control group was selected from the same schools. Age ranges were divided into intervals of two years, seven, nine, eleven, thirteen, and fifteen years. Children below the age of eight years were not found in remedial reading classes, and the majority of the children were between the ages of 11 and 13 and fewer at the ages of 9 and 15. Those who were 15 were inferior to the control groups on such factors as cognitive ability, which was measured by the Primary Mental Abilities Test and the Draw-a-Man Test. The children who had reading disabilities scored lowest on the sub-tests requiring verbal ability, but scores were about 90 IQ on several of the nonverbal tasks. As compared to normal children, the reading disability children tended to score lower as they became older. In working with reading disabled children, Myklebust had observed that older children score lower not because of reading potential but because they are unable to achieve at the normal rate, and frequently this is reflected as a negative correlation between age and reading scores (p. 64).

On auditory receptive language, developmental patterns were the same for both groups, i.e., a plateau at 13 years of age. However, the poor readers achieved a level of function at 13 years of age and the normal readers achieved the level at nine years. On Test II, matching what was heard to the printed page, rate of gain at the two year interval exceeded that of controls and by age 15 rate corresponded to the normals. Yet, at 15 years the reading disabled ability to comprehend instruction aurally and to relate it to reading was that of an eleven year old normal reader. The reading disabled group was from three to four years below the average in auditory reception.

On auditory expression, the reading disabled were three or four years below normal on the ability to give opposites. The fifteen year olds had obtained a level of auditory expressive language equivalent to that of a nine year old. They were also deficient in the definition of words and reached a plateau in this skill at age 13.

On word recognition as measured by the Columbia Vocabulary Test, the 11 and 13 year olds scored one-half of the average with the 15 year olds being one-third the average. The reading disabled did not make expected gains as they grew older. Myklebust (1973) concluded,

> Their inferiority is revealed further in that at 15 years of age their capability was at third-to-fourth grade level. Characteristic of children with reading disability, they did not make the expected gains as they became older. It is not uncommon to find poor readers who evidence greater retardation year by year. Nevertheless, this group showed advancement from 11 to 13, but at a rate below that of the control group. They made no gains from 13 to 15 years, whereas the normals advance rapidly during this age. (p. 69)

Follow-up studies of learning disabled readers. Myklebust's observations of the reading gains of disabled readers has been observed by other special educators. However, the prognosis for learning disabled readers has not been clearly established. In a review of the "history of childhood reading disorders" (Herjanic and Penick, 1972, p. 397) the authors stated that very few studies have been conducted in order to determine the long term effects of reading retardation. They criticized the small number of studies that have been conducted for their small numbers and lack of consideration for IQ, race, SES, and emotional problems. Their conclusions were that the results vary to the extent that no definitive conclusions can be drawn as to the achievement patterns of adult dyslexics. The reader is referred to this article for a thorough summary of the studies which include follow-ups of students labeled dyslexic.

Koppitz (1971) conducted a follow-up study of children with learning disabilities ranging in age from eleven to eighteen years who had enrolled in a public school learning disabilities program. Although the follow-up does not continue into the learning disabled subject's adult life, it is a valuable study because of its implications for placement and programming for those children labeled learning disabled. The children had entered the program over a four year span and when possible were studied for five years following admission. A total of eight years was included from first admission to final follow-up. A learning disabled child was defined by Koppitz as one whose "school achievement is more than one year below his mental age, cannot profit from attendance in a regular public school class despite normal intellectual potential and a lack of gross motor impairment"(p. 1). The term, according to Koppitz, did not indicate any specific underlying etiology.

However, Koppitz concluded that the learning problems observed in the learning disabled pupils were primarily due to some degree of "brain dysfunction."

In Koppitz's summary of reading achievement of learning disabled children, she concluded that before a learning disabled child nine or older could succeed in a regular class she/he should be able to read at least at the fourth or fifth grade level. She stated,

> The findings of the follow-up study convinced me that a child who is still reading at the preprimer or primer level at age 10 or 11 will not become a fluent reader by the age 16. Chances are he will never progress far beyond the second or third grade reading level, if that far. (p. 192)

She found that learning disabled pupils who were returned to regular classes were from the beginning better readers than the long-term learning disabled. In addition to reading achievement, she concluded that, (1) the learning disabled children exhibited varying degrees of learning and behavior disorders, (2) learning disabled children were referred to the learning disabilities program more often for behavior problems than for reading problems, (3) older learning disabled children had reported soft neurological signs when they were younger, but these seemed to disappear as they got older, (4) overall EEGs did not show abnormalities, and (5) those learning disabled children who were able to profit from regular class had parents who were "interested, cooperative, and supportive." Those who did not profit from learning disabled classes or who were referred for residential treatment came from unstable or deprived homes on the whole.

In another follow-up study of disabled readers referred to a reading clinic five years previously, Muehl and Forell (1973) classified the poor readers according to their performance on the EEG. Three groups were designated: (1) normal EEGs, (2) abnormal EEGs with 14 and 6 per second positive spike pattern (PSP) which has been related to severe behavior disorders and lack of impulse control by some investigators, e.g., Freeman, (1971), and (3) abnormal other than the 14 and 6 PSP. After five years no significant relationship was found between EEG findings and reading achievement, although the reading performance of the abnormal, other EEG tended to be better than the other two groups. The Ss were administered the Iowa Tests of Educational Development (ITED), as well as reading tests dealing with reading materials in social studies, natural sciences, and literature. The results of the reading tests were that only two of the subjects had reading scores above the 15th percentile. Five students had dropped out of high school; four of whom were described as having severe reading retardation. Twelve were in college. Muehl and Forell concluded that poor readers in the elementary and junior high, as a group, continue to be poor readers in high school. The better group of readers in their study had higher IQs, were younger when first referred for remedial reading, had spent more time in clinical instruction, and their parents were professionals or white collar workers who sought help earlier for their children. Similarly, other follow-up studies of dyslexics have concluded that specific reading retardation tends to be a persistent handicap (Rutter and Yule, 1973).

Summary of clinical and empirical evidence. The clinical manifestations and studies presented are representative of most studies dealing with the reading characteristics of the learning disabled (dyslexic, minimal brain dysfunction, and so forth). They appear to possess many of the problems in design quoted early by Samuels (1973) and Satz and Sparrow (1970). By very definition, in most cases, learning disabled children possess reading difficulties. The exact nature is not clear at the present time. Most of the studies have adherred to a taxonomic model of reading which yield little more than reading level and a few oral reading errors. Studies modeled after the investigations conducted by Gibson (1970), Goodman (1972), and Levitt (1972) may give us more information about the reading process in all children. Researchers in the field of learning disabilities could profit from the utilization of language processing of reading acquisition in designing their studies.

INSTRUCTIONAL STRATEGIES IN READING FOR THE LEARNING DISABLED

Special educators have assumed that children designated dyslexic, minimally brain injured, or learning disabled, need differential programming in order to learn to read. Many remedial reading programs have been developed for such special populations, e.g., Gillingham and Stillman (1965), Fernald (1943), Hegge, Kirk, and Kirk (1955), Hillis (1971), Bannatyne (1963), Woolman (1965), Fitzhugh and Fitzhugh (1966), and Heckelman (1962). Other programs such as Distar (Engelmann and Bruner, 1969), Words in Color (Gattegno, 1962), programmed readers (Buchannon and Sullivan Associates, 1963), (Behavioral Research Laboratories, 1966), readers not employing traditional orthography, such as the Peabody Rebus Reading Program (Woodcock and Clark,1969), and the Initial Reading Alphabet (ITA), (Downing, 1967; Pittman, 1961), and other special approaches, e.g., language experience approach (Lee and Allen, 1963), organic reading (Ashton-Warner, 1963), and linguistic readers, e.g., Merrill Linguistic Readers (1966), have been used with learning disabled children. Howard (1969) characterized the corrective reading programs used with young and adolescent dyslexics as being ones that include large doses of isolated letter phonics and exercises in perceptual motor development and tactile kinesthetic exercises.

Some educators have noted that methods used with learning disabled children appear to be no different from those used with normal readers or other retarded readers (Lerner, 1969, Rosner, 1971). The present authors have observed that while instruction in reading for learning disabled children includes instruction in word recognition, comprehension, and so forth, it differs from typical remedial reader practices. More instruction appears to be in the area of the reading correlates (see earlier sections of this paper), i.e., language, usually based upon the ITPA or Peabody Language Development Kits (1965, 1967, 1968), perceptual-motor skills based upon Kephart's program (Kephart, 1971), visual perceptual training, e.g., Frostig, Horne Program in Visual Perception (Frostig and Horne, 1964), and auditory perception programs such as the Auditory

Discrimination in Depth (ADD), Lindamood and Lindamood (1969). Although these programs are typically used with younger children, they are also used in remedial programs for adolescents, especially the perceptual-motor training exercise (Howard, 1969).

Such training assumes that the relationships between these skills and reading is casual and that enhancement in these areas will increase reading achievement. However, the relationship between training in these areas and reading achievement has not been clearly established (Gillespie and Johnson), 1947, Samuels, 1973, Hammill and Wiederholt, 1973, Black, 1974, Allen and Dickman, 1966, Keough, 1974, Bennett, 1968, Balow, 1969, Backaland and Balow, 1973, Cohen, 1966, Hammill and Larson, 1974, Hammill, Goodman and Wiederholt, 1974, Balow, 1971, and Sedlack and Weener, 1973).

Moreover, the assumption that special populations read differently or require differential reading instruction from other retarded readers, or from normal readers, for that matter, has not been clearly established (Gillespie and Johnson, 1974, Reed, Mankinen, and Rabe, 1971). Orlando (1973) reviewed the research dealing with methods of teaching reading to these children designated learning disabled and concluded that the research is inconclusive and negligible. Reed, Rabe, and Mankinen (1971), in reviewing the effectiveness of reading instruction for brain injured children, concluded that there is little evidence to suggest that teaching procedures for these children should differ significantly from other children who possess reading problems. Furthermore, the research literature offers little definitive support regarding the superiority of one method of teaching reading over another (Cawley, Goodstein, and Burrow, 1973, Gillespie and Johnson, 1974, Blanton, Sitko, and Gillespie, in press, Bond and Dysktra, 1967).

The majority of research conducted to determine the superiority of one method over another in teaching children with similar characteristics has been in the form of gain-score studies. The investigators of these studies assume designs in which deficits are presumed for an entire group of children, and special and traditional programs are compared (Ysseldyke, 1973, p. 10). According to Ysseldyke, this type of research has been criticized for various reasons, such as the following: a failure to consider the Hawthorne effect; inadequate controls; regression effects; linearity across different levels; and lack of reliability among diagnostic devices (Ysseldyke, 1973, p. 19). Such research assumes homogeneity among the populations, and this has not been found to exist among learning disabled children. In addition, this approach does not necessarily provide information that will be beneficial to the teacher because in such comparisons, it is very difficult to define how one approach is truly different from another. Most methods contain similar elements, such as the teaching of the alphabet, comprehension, structural analysis, or word recognition. Moreover, comparison studies do not reveal the strong or weak points of a particular program (Engelmann, 1967).

Some educators who have developed instructional strategies for learning disabled children have emphasized teaching to the strengths (Johnson and

Myklebust, 1967) while others stress teaching toward the weaknesses (Bannatyne, 1971); or multisensory training, e.g., Gillingham and Stillman (1965). Fernald (1943), has been stressed by some clinicians. Others have advocated training toward intact modalities. Johnson and Myklebust (1967), in particular, contend that some learning disabled children can be overloaded with too much stimuli if multisensory techniques are used.

Currently the efficacy of modality training, with normal and poor readers, i.e., designating children as visual, auditory, or tactile kinesthetic learner and then teaching toward the preferred modality, has been reviewed (Waugh, 1971, Blanton, 1971, Morrissey and Myers, in preparation). The results of these reviews indicate that there is a lack of evidence for the efficiency of modality preference training. Morrissey and Myers designate that many of the studies dealing with modality training use diagnostic procedure for determining modality preference that have questionable validity.

For a thorough discussion of reading approaches that have been used with learning disabled students, including ones stressing modality preference, the reader is referred to Myers and Hammill (1969), Gearheart (1973), and Gillespie and Johnson (1974).

Diagnostic-prescriptive approaches to reading. With the recognition that special classes of children possess inter and intra individual differences (Kirk and Kirk, 1972) an attempt has been made to develop techniques based upon the most effective strategies for "specific variables believed to be related to academic learning" (Ysseldyke and Salvia, 1974). However, in a review of diagnostic-prescriptive training programs, Ysseldyke (1973), Ysseldyke and Salvia (1974) found that there is little empirical support for the diagnostic prescriptive approach.

According to Ysseldyke (1973) the use of correlational and gain-score results in order to determine differential instruction is an inadequate technique. Ysseldyke (1973) stated that aptitude treatment research is an appropriate design for use in investigations of diagnostic-prescriptive programs. He concluded, however, "that very little research in special education has employed aptitude-treatment interaction designs" (p. 28), and those studies that have used the method have failed to demonstrate significant treatment interactions. He cited reasons such as lack of valid, reliable, and educationally relevant instruments as some of the failures to demonstrate significant treatment interactions between personological variables and instructional strategies.

Ysseldyke and Salvia (1974) indicated that effective diagnostic-prescriptive teaching depends on four critical assumptions:

1. Children enter a teaching situation with strengths and weaknesses.
2. These strengths and weaknesses can be reliably and validly assessed.
3. These strengths and weaknesses are causally related to the acquisition of skills.

4. There are well identified links between child's strengths and weaknesses and the relative effectiveness of the instruction. (p. 181)

Ysseldyke and Salvia (1974) question the empirical support for all four of these underlying assumptions in education of handicapped children. These assumptions have been discussed elsewhere in this paper. Such reading programs for the learning disabled are based upon the skills measured in the ITPA and the DTVP.

Task analysis. In their discussion of diagnostic-prescriptive techniques, Ysseldyke and Salvia (1974) include a description of the task analysis model of instruction. They define this model as one that places emphasis "on observed inter and intra individual differences in skill development. Assessment of strengths and weaknesses within this model is restricted to evaluation of the child's position on skill continuance. Emphasis is placed on the child's current level of skill development, the next skill to be mastered, and the behavioral components of that next skill" (p. 182).

According to Lerner (1974) task analysis in the field of learning disabilities is used to determine the processing abilities required of the individual. On the other hand, she states that task analysis in reading involves analysis of the task itself. Problems occur within both approaches to task analysis. First, the underlying processes that are necessary for reading achievement have not been clearly established. For example, a learning disabilities specialist may conduct a task analysis of visual perceptual tasks in order to train areas that have not been established as ones that will directly enhance reading achievement. Secondly, a hierarchy of reading progression and necessary subtasks necessary for competence in reading remains to be clearly demonstrated. Many tasks analyses of reading skills tend to be in areas that reflect taxonomical models of reading instruction, e.g., word recognition, phonetic approach, and structural analysis skills. Such an approach may encourage the training in isolated word attack skills, simply because they are the easiest to analyze according to subtasks that possess a certain amount of face validity, e.g., word recognition, phonetic analyses.

Perhaps more extensive investigations of the reading process will enable educators to develop adequate task analytic approaches which can transfer more readily into instructional strategies.

READING INSTRUCTION GEARED SPECIFICALLY TO THE ADOLESCENT LEARNING DISABLED

According to Wepman, et al., (1975) intervention for learning disabled children over 12 years of age should be compensatory rather than developmental. They stress that the learning disabled adolescent should be taught to utilize their best skills in order to meet the academic requirements of the secondary school. In most of the literature dealing with learning disabilities, the emphasis appears to be on early identification and intervention;

however, at the same time many children who have been identified for remedial instruction relatively early have continued to exhibit reading difficulties in the secondary schools.

Recently, more attention has been devoted to programming in basic skills for those adolescents and adults designated learning disabled, e.g., (Webb, 1975, Bailey, 1975, Giles, 1975, Bonham, 1975). Suggestions have been offered for the utilization of high interest-low vocabulary materials, the development of study skills, and the presentation of content via a variety of methods such as films and cassette tapes on the secondary and college level. While interest in developing reading strategies is for the adolescent learning disabled increasing, we fear the promulgation of materials and programs that have not been carefully validated with adolescents. The adoption or adaptation of assessment techniques and instructional strategies that have had questionable efficacy with younger learning disabled children is no answer to meeting the needs of older children who have reading problems. More analysis of the reading characteristic of the adolescent designated as learning disabled and the requirements of the secondary curricula is needed before programming can be truly effective.

CONCLUSIONS

The conclusions of the preceding review of the research concerning the reading difficulties of the adolescent learning disabled are as follows:

(1) Ascribing specific reading characteristics to those adolescents classified as learning disabled is difficult because of the nature of the populations utilized in clinical and empirical evidence. A variety of interpretations of learning disabilities, dyslexia, minimal brain damage and so forth, exist. Because of definitional confusions and varying identification procedures, heterogeneity exists from group to group designated as learning disabled.

(2) The reading process has been defined differently by those researchers in reading and the other disciplines. Reading research in learning disabilities reflects these various interpretations. Most of the past research depicts a simplistic view of the reading process and most of the investigations have dealt with reading correlates rather than the reading process per se.

(3) Assessment techniques in reading, for the most part, lack validity, reliability, and true diagnostic value. Quantitative rather than qualitative differences are most often measured by these tests.

(4) Clinical and empirical data indicate that "learning disabled adolescents" continue to possess similar reading characteristics to those ascribed to younger children with learning disabilities. Difficulties in basic sight vocabulary, reading comprehension, rate of reading, auditory and visual discrimination difficulties, and sequencing of letters are examples of these difficulties.

(5) Very few follow-up studies have been conducted concerning the long term effect of programming in reading for learning disabled children or the problems accrued by adolescent and adult learning disabled who have reading disorders. Those studies that have been conducted indicate that reading problems tend to persist into adolescence and adult life. In addition, the younger the child at the time of intervention, the more successful the programming; the less severe the reading problem(s), the more chance for success in the secondary program or regular class.

(6) Programming in reading has been more developed on the elementary level. Very recently more attention has been focused on the reading and learning problems of the adolescent learning disabled. Moreover, those special and regular educators who are developing effective instructional strategies on the secondary level are faced with the critical issue of the lack of carefully validated programming developed for younger learning disabled from which to generalize.

Implications

Two critical issues should be addressed in programming for those adolescents designated learning disabled. First, more research should focus on the current theories in the field of reading. The lack of specificity of the research describing the reading characteristics of normal and inadequate readers is apparent. Most often, because of the utilization of a taxonomic model of reading, investigators who have studied the characteristics of poor readers have reported only reading levels and a few clinical observations of oral reading errors. More studies dealing with involvement of linguistic and information processing skills in the reading process should be conducted. Most promising is the research conducted by Levitt (1972), Blanton (1974), and Bilsky and Evans (1970), with poor readers in exceptional populations. Furthermore, research conducted by Goodman (1965, 1968, 1972), Venezky and Calfee (1970), Smith (1971), Elkind, et al., (1965), and Gibson (1970), seem to have promise for research in determining reading characteristics of the learning disabled adolescents.

If educators are to consider the individual reading needs of learning disabled children and adolescents, a re-orientation in research methodology, programming, and teaching training must occur. Rather than attempting to isolate or ameliorate various deficits using generic intervention programs, it would seem more feasible, based upon the review included in this paper, to conduct task analyses of childrens' behaviors in learning to read. Most often, reading approaches used in classes for the learning disabled employ phonics and/or whole word approaches which consider the word as the basic unit of reading. These methods neither attend to the communicative nature of reading, nor do they address themselves to the relevance of linguistic context, particularly to semantic and syntactic relationships in sentence structure in determining both word perception and comprehension. It is necessary that investigators in reading should develop training techniques which enhance the ability of learning disabled children and/or adolescents to efficiently attend to and utilize relevant linguistic strategies which take advantage of the basic structures of the materials themselves.

Second, children and adolescents who have been classified learning disabled tend to exhibit a wide range of abilities and disabilities. The heterogeneity of a supposedly homogenous population has been cited countless times in the literature. Although researchers may be able to identify learning disabled children and adolescents with similar clusters of characteristics (McCarthy, 1975), the development of instructional programming necessitates focusing on the individual and situation-specific assessment rather than merely determining general clusters of behavior. While particular reading difficulties may be remediated by specific instructional strategies, this may not be the case with every adolescent possessing that particular reading characteristtc. Motivational factors, the influence of previous instruction, and the nature of the content, e.g., social studies, will influence the efficacy of the intervention. Because of the many variables involved in establishing programs for adolescent learning disabled, we suggest the utilization of a decision making model for programming (Gillespie and Sitko, 1974, 1975). The major stages of the model are assessment, implementation, and evaluation. In assessment the teacher establishes the instructional needs of the child by gathering data from a variety of sources, i.e., pupil records, information from resource personnel, and in situ. The information gathered from the classroom setting should have the most importance in terms of establishing instructional objectives for the child. In planning a program for the adolescent, the teacher must conduct a task analysis of the reading materials and/or strategies available and a learner analysis of the adolescent. Hopefully there should be a match between the cognitive demands of the approach and the learning characteristics of the child. All programs established should consider as much data as possible including the preferred teaching styles of the teacher, the influence characteristics of other children in the classroom, etc. Instructional needs should be considered tentative by the teacher. Diagnostic teaching lessons ought to serve as trial lessons and data gathering should continue in this process. All the instruction should be part of assessment; hence, lessons are part of the continual and ongoing assessment of instructional needs. Evaluation should be in terms of effectiveness of the teacher and the gains of the pupil. The teacher ought to evaluate his/her effectiveness in implementing and monitoring instructional programs. Also, the establishment of concise objectives for the child and/or adolescent enables the teacher to evaluate the progress of the child and/or adolescent.

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SURVEY OF SECONDARY PROGRAMS FOR THE LEARNING DISABLED

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Introduction

In the twelve years that have passed since Dr. Samuel A. Kirk quite unintentionally participated in the christening of the learning disabilities movement*, programs and facilities for children with learning disabilities have spread rapidly across the country. However, most of the program growth and development has occurred at the elementary level; at this time, secondary programs are still a rarity. We are just now beginning to turn our attention toward a heretofore neglected population of older learning disabled students.

The delay can be attributed, in part at least, to the naive belief held by many professionals and parents alike that early identification and remediation would "cure" learning disabilities. We know better now; learning disabilities very often persist despite our best educational efforts. Many young children who have been in special programs are now growing up and bringing their learning difficulties with them to our secondary schools. We also realize that there are many learning disabled junior and senior high students, who are struggling and/or floundering in secondary programs, whose problems went undetected and untreated in the primary grades. Their time has come. And I believe that this symposium is an acknowledgement that the professional community has recognized and is attempting to come to grips with the problems of the learning disabled adolescent, teenager, and young adult.

Secondary School Programs

In this paper I attempted to provide an overview of secondary level programs for the learning disabled and to discuss related issues. This review is by no means inclusive of all secondary level programs currently in operation. Such an undertaking would have been impossible. Rather, I have attempted to compile a representative sampling of current programs. What information I was able to obtain was obtained with considerable difficulty. Secondary programs being quite new are not yet well publicized; final project reports are in most instances not yet available. The problem of information retrieval is compounded by the absence of any central clearinghouse for information on federally funded projects.*

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*On April 6, 1963, Dr. Samuel A. Kirk, in a speech presented at a conference sponsored by the Fund for Perceptually Handicapped Children, Inc., introduced the term "learning disabilities." That same day the Fund for the Perceptually Handicapped reorganized to form the Association for Children with Learning Disabilities.

Though there are many omissions, the programs described and discussed do, I believe, offer sufficient breadth and variety to illustrate current programming trends. While secondary naturally applies to both junior and senior high school programs, I have included discussion of some post high school programs that pick up where high school programs stop. I found that adult basic education programs and the army literacy training program did, as Dr. Mann and I suspected, provide training in basic school skills, particularly reading and language arts, to many individuals who merited the label learning disabled. These programs were most interesting with some relevant implications for our own school programs. This information will be presented in a later section of this paper.

This review does not include a discussion of residential or private day care facilities which offer programs for the learning disabled adolescent. By their omission I did not intend to slight the value or effectiveness of the programs which they offer. Private residential and day schools that work with older learning disabled students, which incidentally have been dealing with this segment of handicapped youngsters much longer than have the public schools, generally are better equipped than public school based programs to handle the cases of very severe disability which are often compounded by emotional disturbance or maladjustment. Despite the trend toward mainstreaming, I feel that students who cannot cope adequately or effectively within the normal school setting even within the less demanding environment of the special class are likely candidates for private school placement. Thus, private schools such as Vanguard School and the Devereaux School will always be an important adjunct to public school programs for severely handicapped students.

Federally Funded Programs

The field of learning disabilities has benefited greatly from the infusion of funds through Title VI, Part G and Title III educational assistance acts. In recent years, federal funds have been channeled into the development of innovative secondary level program models; hopefully, we can anticipate continued funding in the future.

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*I would like to commend the Project R.I.S.E. (Research and Information Services for Education) in Pennsylvania, located in King of Prussia and under the direction of Mr. Richard Brickley, for the annually published PACE index to Title III projects funded in Pennsylvania. This index gives one immediate access to all Title III funded programs (all types, levels, etc.) operating in the state. This system could well serve as a model for other states.

A number of recent projects funded under Title VI have initiated projects aimed at developing service delivery models for older learning disabled students. These projects, usually referred to as Child Service Demonstration Centers, are operating in the states of Illinois, Texas, Oklahoma, West Virginia, Michigan, North Dakota, and Ohio. The projects differ widely in terms of goals and activities; a brief description of each follows.*

West Virginia Child Service Demonstration Center project provides educational assistance to learning disabled and potentially learning disabled children through regular class instruction. The target population includes children in grades K through 12. Four alternative educational interventions are available (Levels 1, 2, 3, 4) once a child has been identified as handicapped or potentially handicapped: (1) short-term placement in a school that has a special education or reading teacher so that appropriate instructional methodology can be determined and communicated back to the child's home school teacher; (2) the child may receive instruction in a resource room operated on an itinerant basis by the reading or language arts teacher who in turn is supported by an itinerant center clinician; (3) the child could receive a diagnostic/prescriptive program provided by his own teacher with the assistance of a center clinician or trained staff member such as the language or reading teacher; and (4) the child could receive a diagnostic/prescriptive program provided independently by his own teacher who has received prior training in diagnostic/prescriptive teaching. Obviously, the program embodies a strong bias toward mainstreaming in that the child is never severed from the regular class and responsibility for instruction rests primarily with the regular classroom teacher or other regular school personnel. A group of Learning Disabilities Center clinicians who provide in-service training and field services are the back-up support for the regular teachers. Their accessibility is facilitated by the use of Mobile Clinic Laboratories.

Ohio Child Service Demonstration Center. The purposes of this project are threefold: (1) the development of an in-service training program model for teachers, tutors, and program consultants who service learning or behaviorally disordered children; (2) the development of a model secondary program; and (3) the extension and refinement of identification and selection procedures for learning disabled students in both elementary and secondary schools. Exportable products currently being developed include learning disabled identification instruments for both primary and secondary school use, multi-media in-service training packets, assessment procedures, and materials to be used in secondary classes. Five classroom programs for adolescent students are planned.

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*I am indebted to Dr. J. Lee Wiederholt for giving me access to the "Third year report" of the Leadership Training Institute of the University of Arizona before it was ready for general dissemination. The report prepared by himself and Dr. J. McCarthy is the source from which I obtained information on Title VI projects contained in this paper.

Michigan Child Service Demonstration Center. The objective of this project is to better serve learning disabled students by means of regional learning disabilities centers to be established in both rural and urban sections of the state. The centers will provide services to children with learning disabilities from kindergarten through senior high school. Activities of the center will include in-service training to teachers, consultants, administrative personnel, consultative services provided by a staff of itinerant learning disabilities specialists, and diagnostic-prescriptive services. If she desires to do so, a teacher may bring a child to the center for evaluation. By the end of the day a thorough evaluative diagnostic work-up will have been completed and an individualized prescription prepared. Eventually, regular class teachers should be able to do their own evaluation and programming for handicapped students if the in-service and consultative services are effective. Lastly, in-service for administrators and programs for parents will be provided to help foster a better understanding of the learning and behavior learning patterns of learning disabled children both at home and at school.

Texas Child Service Demonstration Center. This project is aimed at the development of a "replicable instructional management system" consisting of a diagnostic system and task specification system in three curricular areas. The development of a series of "exportable instructional packets (mini-module)" is a second major project endeavor. Each mini-module will include diagnostic techniques, instructional strategies and materials, and a measurement instrument. They are intended to be used for from five to ten days, approximately 30 minutes per day. The curricular packets emphasize instruction for process deficits.

Oklahoma Child Service Demonstration Center services students in grade seven through twelve in four participating school districts. As a result of the project intervention teams, comprised of both special and regular school personnel, will be set up for the purpose of preparing individual prescriptive learning programs for students with learning problems. The personnel connected with this project are particularly sensitive to the social and emotional pressures which are unique to the secondary school environment and will attempt to deal with these non-academic factors which so often impede academic development in order to facilitate each student's development at a rate commensurate with his level of ability.

North Dakota Child Service Demonstration Center is an attempt to extend special services to learning disabled children (K-12) in rural regions of the state. The project will provide direct services to children, in-service training for regular class teachers in two target areas, and training of resource specialists to be employed in project schools the following year. The resource specialists, in turn, will be responsible for direct work with children within their designated school, in-service training for the regular school staff, supervision of practicum and internship for trainees, and the establishment of parent and volunteer programs. A college faculty member will assist the resource specialist in carrying out in-service and pre-service training activities.

Learning Action-Research Center (Illinois). The Illinois project is concerned with the operation of model classroom programs at the secondary level and had initiated resource room and self-contained programs for adolescents with learning disabilities. Each school containing one of the learning disabilities programs is staffed by the learning disabilities teacher, one special education assistant, three faculty volunteers, two student volunteers, and three to six community volunteers. Staff conferences are held weekly. Maintaining communication with the regular school staff is an important facet of the learning disabled teacher's role. Hopefully, the school can become the nucleus for a total learning environment where the student functions successfully and as independently as possible. The objectives of the LARC stress remediation or compensation for disabilities, student acquisition of basic skills, implementation of the community-school concept, establishing the learning disabilities classroom as a resource for all school personnel, and eventually extending service to all handicapped students disregarding categorical distinctions.

In addition to the Title VI projects just described, many innovative projects have been initiated through Title III, E.S.E.A. A few of these projects are described.

Alternatives to Failure: A learning disabilities program for junior and senior high is on-going within the Des Moines, Iowa public school system. The Alternatives to Failure program is part, the last to be added, of a comprehensive continuum of school programming (K through 12) for learning disabled students in the Des Moines schools. The program which services secondary students, can, without exaggeration, be termed a community rather than merely school based program as pupil, peer, staff, parent, and community involvement are integral components of the total project structure.

The classroom model is one that has become quite familiar to us by now, namely, the resource room. The instructional orientation is decidedly remedial and utilizes the diagnostic-prescriptive approach. Assessment of each student's areas of weakness, is followed by individualized programming to "help the child with his problem areas in learning." The basic instructional strategy, "remediation of deficits" is apparently adhered to at all levels with the teachers substituting tests and materials appropriate to the student's age.

Secondary classrooms were first opened in July, 1973. By November of this past year three senior high schools and seven junior high schools had learning disabled programs. The goal is to have the program operational in all twenty Des Moines secondary schools by the fall of 1975.

In each school the learning disabilities program is backed up by a learning disabilities team comprised of the learning disabilities specialist, the resource teacher, four regular teachers (one from each content area), the principal or his representative and, when requested, the nurse, psychologist, speech therapist, or social worker may participate. The content area teacher will attend Drake University for graduate work in learning disabilities and one will go on to complete twenty-one college hours in an approved training program in order to become a resource teacher. The involvement of teachers with both special education and regular education backgrounds greatly facilitates the acceptance of the program and the adapting of curriculum in content subjects to meet the needs of learning disabled students.

Project C.O.A.C.H.,Crossover Assistance to Children with Handicaps (Hines, 1974) is a Pennsylvania Title III project currently operating in the Central Dauphin School District. The program is designed to provide assistance to 7th and 8th graders who are unable to cope with the scholastic demands of junior high school. The students included in the program are those identified as low achievers and/or learning disabled. A low achiever was defined as a student whose academic performance fell one or more years below his actual grade placement. The learning disabled were identified by their classroom teachers and received help from a learning therapist assigned to their school.

The experimental program focused on math and social studies and was based on a multi-media instructional approach and a philosophy of continuous progress from the student's own baseline of achievement (the unrealistic and often harmful standard of on-grade level performance was avoided). In comparison to their peers, underachieving adolescents are constantly losing academic ground, falling farther and farther behind. Through Project C.O.A.C.H., the school personnel hope to reverse the trend toward academic deterioration among these students. Just "holding the line" in math or social studies would represent progress; gains were doubly rewarding to both the students and project staff.

As a result of the project many significant changes occurred in regular classroom procedures, e.g., a shift from traditional lecture and textbook approaches to small group instruction utilizing a variety of approaches (audiovisuals, manipulatives, simulations, etc.). Other noted effects included a marked decrease in discipline problems and improvement in student attitudes toward school reported by teachers and parents. Many of the students made impressive academic gains. During the project's second year (1973-74), the number of 7th graders who gained academically in math and social studies was 73 percent and 83 percent respectively. Among 8th graders, 86 percent and 65 percent demonstrated improvement in math and social studies. In math, 27 percent of the 7th graders and 11 percent of the 8th graders made no gains or lost ground; in social studies, the percentage of students who regressed was 17 percent at the 7th grade level and 35 percent at the 8th grade level. Though the project did have a designated control group, statistical comparisons between experimental and control subjects were not available.

Another Title III effort which bears some resemblance to Project C.O.A.C.H. is described by Landis (1973). This secondary level program is intended to meet both the "subject matter needs and remedial needs of the learning disabled student" by extensive curricular modification of the existing reading program. Teachers of English I, Mathematics I, and Science I were urged to substitute a multi-sensory learning approach for traditional textbook oriented instruction. The teachers also had to structure course content in terms of behavioral objectives, and prepare appropriate auditory, visual, and kinesthetic learning aids and materials to facilitate the student's acquisition of skill and knowledge in the content areas.

A basic remedial program parallels the new, modified instructional program. Here students, removed from the demands and pressures of the content reading situation, are able to profit from reading instruction in the content word recognition, and comprehension. Study skills are stressed in the remedial instructional program.

As a result of the program, learning disabled students are passing their academic courses and Landis insists that the courses were not "watered down"; they differ in method of presentation, not content. There has also been marked improvement in attitudes and behavior, as well as academics. Apparently success in content subjects, and the self-respect it engendered, seems to have been the impetus for improvement in both remedial and general reading.

The three projects which have been described above, Project C.O.A.C.H., Alternatives to Failure, and the Landis Curricular Modification project, have at least one important element in common. The involvement of secondary content area teachers. By this means each project was able to stimulate alterations and modifications of methods and materials in a regular class to bring academic instruction more in line with the needs of learning disabled adolescents. Experimental programs which are designed to achieve this kind of effect are particularly promising. Secondary students have two needs, remedial or compensatory aid and "school survival therapy" (Ansara, 1972). We have to help adolescents to achieve n[illegible]nly in separate special programs but in regular courses, the mainstream, with their non-handicapped peers. Unfortunately, this task is not going to be an easy one. Too few secondary teachers outside the realm of special education, view themselves as responsible to teach basic skills, particularly reading skills, along with the subject matter of their discipline (Herbert, 1972). Their attitudes will have to change; Project C.O.A.C.H., Alternatives to Failure, and the Landis Curricular Modification program are headed in the right direction and should be encouraged.

The last Title III project to which I would like to draw your attention, involves the establishment of a regional diagnostic learning center offering comprehensive social, medical, and educational services to children with learning disabilities. The Area Learning Center (Huizinga and Smalligan, 1968) is a multi-disciplinary team service for children and adolescents with classroom learning problems. The center staff includes reading experts, psychologists, psychiatric, pediatric, and academic professionals. After a student is referred from a local school system, a center consultant will observe the child in his own classroom and complete some preliminary testing.

Thereafter two courses of action are possible: an educational plan may be developed by the consultant working cooperatively with the teacher and school principal or the child may further receive diagnostic testing in which case an evaluation is scheduled at the Area Learning Center. Assessment probes intellectual, perceptual, academic, and personality factors. Following the evaluation, a joint conference is held with the center school personnel which results in the formulation of an educational plan. The plan is then implemented in the school with back-up support provided by the center's consultant.

By the end of the center's first year in operation some secondary benefits of the center concept came to light. In the course of evaluation for learning disabilities, numerous health problems were detected and appropriate medical treatment given. The interdisciplinary team approach made it possible to coordinate the services of many organizations avoiding wasteful duplication of services. Finally, the project staff found that the center concept was very well accepted by parents and school personnel.

Summary

To recap, in the field of learning disabilities, federal monetary assistance has spurred the development of educational innovations and helped promote the expansion of programs both in terms of the numbers of children being serviced and the array of attractive services that are available. Service delivery models may be direct or indirect, and may vary from classroom operations to centers for materials, information, assistance in diagnostic-prescriptive methods, in-service, and even actual student evaluations. In-service and occasionally pre-service training figure prominently in many of the projects. The recipients of in-service training may be regular or special education teachers, as well as other instructional or supportive staff or administrative personnel. More often than not, in-service deals with the training of teachers, learning specialists, and consultants in diagnostic-prescriptive teaching competencies. Also, the development of prepackaged exportable learning packets or materials, expressly designed for the learning disabled, is a major objective of some current programs.

The trend toward resource rooms with back-up supportive services rather than self-contained classroom units is very strong as is the commitment to clinical teaching. The clinical-diagnostic approach emphasizes differential diagnosis and individualized instructional programming for the remediation of learning deficits. It is not always clear whether deficit refers to a lack of specific skills, i.e., in reading or math, or some sort of inner process dysfunction, i.e., perception, memory, spatial orientation, etc. However, I suspect that deficit oriented programs too often deal with the latter. For example, at the most recent ACLD conference in New York, our group from Montgomery County shared the stage with another group from New York State which was there to describe their secondary learning disabilities program. Their program was definitely remedial, prescriptive, and concerned with the amelioration of process dysfunctions as assessed by instruments such as Malcomesius' Specific Language Disability Test, The Illinois Test of Psycholinguistic Abilities, The Wepman Auditory Discrimination Test, and the Detroit Tests of Learning Aptitude.

Perhaps the most glaring example of a process-based training program at the secondary level is Project T.I.N.T., To Involve New Tones. The project's instructional program for learning disabled adolescents rests upon assessment of student performance on the I.T.P.A. and the resulting remediation is tied directly to the subtests on which the student performed poorly. If the student's score on the subtest for visual sequential memory was depressed, he is trained to do better on visual sequential memory tasks.

The fallacies and pitfalls of psychoeducational process testing and training have been documented, discussed, and argued repeatedly in the literature (Wepman, Cruickshank, Deutch, Morency, Strother, 1975, Hammill and Larsen, 1975, Mann and Goodman, 1974, Goodman and Hammill, 1973, Mann, 1970, Mann, 1971-a, Mann, 1971-b, Mann and Phillips, 1967). While I will not take the time to delve into the specifics of the issue, suffice it to say that theoretically, philosophically, and empirically the evidence overwhelmingly argues against the validity of this approach for the education of handicapped children, the learning disabled included. Why then does process training persist? More importantly for us, why is this approach which has been shown to be defunct with elementary handicapped youngsters now being advocated and implemented in programs for secondary students?

I have another nagging concern about secondary learning disabilities programs that has become more acute as I reviewed the literature on programs and other related topics. The program reports and descriptions which I read typically provided very little information on their procedures and criteria for identification and selection of learning disabled students. It is not at all clear to me what kinds of kids are being included or excluded from secondary programs. Ultimately, the related issues of definition, identification, and incidence must be dealt with and somehow resolved for they directly effect the future direction and viability of secondary programming in learning disabilities.

Incidentally, in the literature I came across a number of secondary school programs, not specifically labeled special education or for the learning disabled, which very likely are including a lot of learning disabled students. After all, what kind of adolescent ends up in a terminal class for non-academic (Stowe, 1971), and what kind of students are labeled non-academic teenagers (Scott, 1970), or adolescent non-readers (Lane, 1970), not to mention dropouts or delinquents? If we aren't clear and specific about definition and identification, we may miss a lot of students who need our help.

Finally, I found that the evaluation component is again, as is so typical in special education, being slighted. We shouldn't in our haste to meet the needs of the handicapped overlook the necessity for well conceived and executed evaluation designs if our programs are going to rest on a firm foundation of supporting evidence rather than whims, intuitions, or questionable theories. We have already paid a very high price in terms of money and teacher and pupil time on too many non-validated and unproductive materials, curriculums, and training systems. I would like to see all educators become much more critical and discerning in their acceptance of educational innovations and begin to demand hard evidence of their usefulness and effectiveness before we adopt them for our children.

Vocational Training for Learning Disabled Adolescents

Any program for adolescent students with learning disabilities would be incomplete if it did not provide for both academic and vocational training needs. Learning disabled teenagers who are moving rapidly toward adulthood will require, perhaps more than many other students, guidance and preparatory training if they are to achieve worthwhile and satisfactory careers.

Vocational training for the learning disabled is not just a matter of gaining admission to existing vocational-technical training facilities for these handicapped students. I don't doubt that learning disabled students were around long before the term "learning disabilities" became popular and furthermore that many of them were already being shunted off to vocational training programs which were viewed as the suitable place for low achieving or low ability students (Williamson, 1974).

If the learning disabled students are going to benefit from occupational training, the programs will have to be adjusted to meet their unique needs. Williamson (1974) calls attention to three basic issues which can affect the success of secondary handicapped students in career education programs. First, career education programs for the learning disabled student must be supplemented with basic literacy skill training. Williamson is expressing the views of teachers and particularly parents who fear that career education may abstract students from academic and socializing experiences. The issue here is really a matter of priorities and is quite important. By the time the learning disabled adolescent reaches junior high and especially by the time he enters high school, most of his academic training years are behind him. Of course, students who plan to go on to college, and there are those who can and should, are an exception.

Most learning disabled kids, however, will not pursue academic training beyond high school. We need to use the few high school years that are left in the way which will be most beneficial to the student. It is, I believe, the time to be practical and realistic with an eye toward the young man or woman's future life goals. Many factors need to be considered: current levels of achievement in academic subjects, rate of growth demonstrated in the past, career goals, parent's aspirations, etc. Ultimately some decisions have to be made and a program mapped out. For a student who wants to go to college, vocational type training may be eliminated; for another preparing for a trade, curricular emphasis may shift from developmental or leisure reading to practical, job-related reading and vocational training may take up the major portion of the school day. Hopefully, the student's program will be decided upon jointly by the student, his parents, and his teacher.

The second issue which Williamson raises is that career education programs must offer a wide range of alternatives, including college, to these students. The learning disabled, like any handicapped group, is more heterogeneous than homogeneous in ability, accomplishments, and aspirations. Career education programs must expand to meet their needs and desires rather than try to absorb these students into a restricted range of existing vocational alternatives. We should also bear in mind that the learning disabled by definition have at least normal, often better than average, intellectual ability; college training is certainly a reasonable and realistic goal for many (Minskoff, 1971, Ansara, 1972). In fact, there is one college, College of the Ozarks, which offers a four-year accredited program in the humanities and sciences for gifted learning disabled students between the ages of 18 and 25.

Finally, Williamson suggests that career education programs must reach beyond the "narrow concept of occupational orientation" to deal with emotional problems and social relationships as well. Vocational preparation for one specific job and no other is certainly out-moded in a technological society such as ours where jobs are both created and eliminated at an alarming rate. Career education must equip the soon-to-be-looking-for-job student with marketable skills which apply across many occupations. Some professionals are suggesting that for handicapped students we should define their strengths and then match them to job requirements (Wiig, 1972, Brutten, 1966) thereby increasing the student's employability and his likelihood of job success.

Having briefly discussed some aspects of vocational training, I will turn toward some model programs: The Career Development Center in Syosset, New York; Project Worker in Fullerton, California; and another vocational rehabilitation program also operating in New York State. The program descriptions follow.

Career Development Center (Collella, 1973, Goldberg, 1974). The Career Development Center is an alternative high school program serving handicapped students age 15 to 21 who reside in any of the 56 local public school districts in Nassau County. The program is not categorical and includes students who may be labeled retarded, learning disabled, or behaviorally/socially disordered. However, the severely disturbed or behaviorally maladjusted or students with pronounced and debilitating physical disabilities are excluded. The program at CDC is "transitional" in that its aim is to strengthen the students vocational and academic competencies so that they can return to their home schools and/or find success in an occupational endeavor of their own choosing. The main programmatic goals are:

1. to upgrade students' knowledge and application of basic tool subjects in relating these prerequisites to daily experiences

2. to expose students to a variety of occupational activities so that the student may make realistic vocational choices

3. to return to local high school programs those students who manifest positive changes in behavior and an increased ability to deal with the demands of their environments

4. to help each student within the span of three years to be able to move into more advanced training, return to his local district, obtain full time employment, or, at minimum begin part-time reintegration into the community

5. to provide a therapeutic environment in which each student can experience responsibility in becoming more independent through alternative choices in decision making

The student's weekly program consists of 40 periods of instruction--18 periods in occupational education, 12 periods in core subjects, and 10 periods of electives. The curricular structure revolves about clusters or units which relate to occupational areas, e.g., food preparation, electronics and building maintenance, automotive basics, etc. Each unit encompasses a range of related occupational activities and core subject matter related to the occupational themes. Each unit is staffed by a team consisting of two occupational specialists and a special education teacher, who work together to interrelate both academic and occupational experience to achieve maximum learning benefits for their students. Generally, the project staff has found that the students' success in occupational activities and increased awareness of the importance and relevance of basic academic skills, leads to a renewed interest and increasing achievement in reading, math, and language.

Project Worker. This program involved the development of a course of study in career education which is now available to handicapped, teenaged students (mentally retarded, learning disabled, or orthopedically disabled), in grades 9 through 12 in the Fullerton Union High School District, Los Angeles, California. The program strives to teach job-entry skills and provide pre-occupational experiences which will assist these students to obtain employment, hopefully in better job placements than have traditionally been available to the handicapped. The course includes appraisal (by self and teacher) of job aptitudes and ability, access to a variety of community resources (field trips, speakers, films), exploratory work experiences in class and on-the-job, and performance evaluation.

The course is not necessarily a self-contained, closed sequence of study, it may be implemented differently by various teachers depending on their attitude toward career education. It is, however, designed to be individualized and unstructured, with the responsibility for completion of activities resting with the student.

Vocational Rehabilitation of ED and BI Adolescents in a Public School Setting. The purpose of the project was to develop and evaluate a vocational rehabilitation program for emotionally disturbed and brain injured adolescents in a public school setting. The program provides both prevocational preparation and job training within a tri-level framework. Level One involves prevocational orientation in which students are first introduced to the world of work. Through classroom lessons, career development materials, and shop, the students become aware of their vocational aptitudes and interest. Level Two involves exploratory occupational education which provides each student with brief experiences in a variety of occupations prior to the student's choice of a specific area in which he will receive intensive vocational training. This second phase of training involves instruction in class and shop, occupational training and related academic instruction. Level Three deals with specific occupational preparation and initiates on-the-job training in the student's chosen occupational area. Training may be provided through a classroom-shop program or a work-study arrangement.

Students may participate in the program from the age of 14 up to and including their 21st year. Level II training typically begins when students are 15 or 16 years of age; Level III at 18 years of age. Upon completion of the program, each pupil receives a diploma from his own high school and is assisted in locating full-time employment.

Adult Literacy Training Programs

Many learning disabled individuals will still have significant reading and other language related learning problems when they leave high school.

Adults with persistent reading/language problems can get help. Literacy training programs for non-readers are available through adult basic education programs and the U. S. Army's literacy program has been operating for many years. We reasoned that many of the individuals involved in these programs would, if we were able to assess them, probably meet the criteria that define the learning disabled. Therefore, we took a close look at these adult training systems hoping to find something of relevance for secondary school programs.

The largest and perhaps best known organization which sponsors adult basic education is Laubach Literacy, a non-profit organization, based in Syracuse, New York. Laubach Literacy and its affiliates comprise a network of adult training programs which extend throughout the United States and Canada (there are over 800 chapters at this time). The organization's purpose is, quite simply, to promote literacy among the illiterate. Their training programs are a free service for non-reading and low functioning readers.

As originally conceived by John Laubach, the organization's founder, the basic teaching strategy was simply a matter of one to one, a tutor and a student. Tutors were and still are recruited on a volunteer basis and receive no renumeration. After intensive in-service training in the use of certain materials and methods, they are assigned a client. The client's participation is also voluntary. Literacy groups publicize their services through community organizations, churches, and sometimes the commercial media in order to make their services known. Once a training program is begun, it will continue for as long as the individual cares to participate.

The core materials used in the Laubach Literacy training program are produced by New Readers Press, a subsidiary of Laubach Literacy, Inc. While additional and supplementary materials may be utilized, the Laubach publications are the heart of the adult program. And they are commercially available to anyone, including public schools, who would care to purchase them.

Now for a closer look at the materials. The New Streamlined English Series is the basic reading and writing curriculum. The program embodies a highly structured, phonetic approach which stresses symbol-letter associations. A unique element found in the sequenced workbooks, perhaps copied by others by now, is the use of pictures with letters superimposed upon them which is appealing to the student and aids retention of the sound-symbol correspondence. The materials are "semi-programmed" and each lesson includes phonics, reading sight words, comprehension checks, structural analysis, and vocabulary development. Accompanying writing lessons reinforce reading concepts and develop spelling skills.

The series contains five skill books which incorporate a logical sequence of skill development extending from grade one through grade level five.

Skill Book 1--sounds and names of letter

Skill Book 2--short vowel sounds

Skill Book 3--long vowel sounds

Skill Book 4--other vowel sounds

Skill Book 5--special consonant sounds

While the skill books emphasize phonics skills, comprehension is also stressed from the outset of training. There are no isolated drills of sounds, letters, syllables, or nonsense words. Instead, letter-sound relationships are shown in key words; words are then used meaningfully within story context in that very lesson. The stories are cross-cultural and topical and generally appealing to adult needs and interests.

The skill books are paired with correlated readers which reinforces the specifics of the skill lessons and encourages independent reading. In addition there are student check-ups (criterion tests) to accompany the skill books. Teacher's manuals, visual teaching aids, and high interest supplementary reading material complete the program.

Perhaps the most striking thing about the Laubach Literacy program is that their method and materials aren't striking at all. Indeed they are not, at this point in time, particularly innovative, unique, or, from a personal point of view, terribly attractive -- just basic workbooks and readers not unlike many of the materials we already use in some of our own secondary classes. The teaching method, tutoring, is not a methodological breakthrough. One to one instruction would be ideal; unfortunately, it is a luxury that we cannot afford in public school programs.

Does the program work? Unfortunately, objective evaluation strategies have not been employed to evaluate the program's effectiveness. Subjectively, people associated with the enterprise are very enthusiastic. I personally visited the Adult Basic Education Academy under the direction of Mr. Sven Boreia located in Philadelphia. Evaluation, if any, is somewhat criterion based in that it can be determined how much, from the content of the New Streamlined English Series, the individual was able to master from initiation to the termination of training. Standardized testing just is not done.

If the program enjoys a measure of success, and I'm willing to concede that it does, it rests, I believe, on the key factor of motivation, sound materials and teaching, and relevance. We can't underrate the fact that the student comes to the center voluntarily because of his own felt inadequacy and his desire to find help. We aren't dealing with students who have been assigned (dumped?) into a special class because a school administrator feels that the program is likely to help them overcome learning problems. The problems of stigmatization is not present here. If anything, the adult non-reader is trying to get away from the stigma of illiteracy in a highly literacy oriented society.

When his decision is made, and the individual avails himself of the services that are available, what does he find? In Philadelphia, he'll find two large, crowded, old, badly in need of paint and remodeling rooms at the top of three flights of stairs. These are a makeshift library and study room. He'll also find people who most earnestly want to help him to learn how to read. He will be evaluated and assigned a tutor who will work with him individually, hopefully at least two times a week (more if possible) on the language related problems that he has. The materials aren't gimmicky, electronic, or fancy -- just a straight forward presentation of basic reading skills that he never mastered in school.

What does all of this have to do with our own secondary programs for adolescents? Motivation, intensive instruction (no open classrooms for our group, please), basic skill development, and relevance are the key concepts and we ought to keep them in mind for our own programs.

For a number of years, the army has conducted literacy training for non or low reading draftees and recruits. Literacy training programs are currently operative on five army bases throughout the continental U. S. The information which follows was derived from a personal interview with Mrs. Ramona Montovanni who is presently Director of the AIPT Reading Program at Fort Dix (Advance Individual Preparatory Training).

At the time of induction all new recruits are routinely evaluated in literacy skills. Individuals who do not attain a fifth grade reading proficiency are assigned to Advance Individual Preparatory Training (AIPT) for a period of six weeks immediately following completion of basic training. According to Mrs. Montovanni, the mean reading competency of the men who enter her school is third grade. Age-wise the recruits are typically in their late teens. Many have never completed high school and some have diplomas, yet still can't read up to standard. The objective of the program is to increase reading proficiency level to 7th grade level. The training program typically produces two years' growth in six weeks time. Growth is measured on a reading test devised by the army for its own use. We requested it but were unable to obtain a copy of this instrument, however, we were told that it is very similar to the California Achievement Tests. Two years increase in reading ability after only six weeks of training is quite impressive. How do they do it?

The daily schedule during the six week training period includes five hours of reading instruction. Three hour sessions in the morning which includes group instruction, individual tutoring, and lab. In the afternoon there is a two hour session. There is no teacher assistance at this time, instead the men work with programmed, criterion referenced study modules related to M.O.S. (Major Occupational Specialty).

The primary materials used for instruction are MOTT and SRA. Conquest in reading and Educational Development Laboratories are used with some of the very low functioning trainees. A variety of other materials are also utilized and most of the titles would be familiar to any reading teacher.

Trainees may be assigned to one of two reading tracks based on level of functioning, low elementary or high elementary. Bilinguals who are very low in their knowledge of English (most often Spanish speaking) are assigned to groups with bilingual teachers who will speak Spanish during the first three weeks, never during the last three weeks of AIPT. I should add that the teachers are all civilian and female.

Again, as occurred in the case of adult basic education, I was surprised to find that the methods and materials of the army's program are already available to us. However, the intensity of the instruction is noteworthy. If one does a little bit of arithmetic, it readily becomes apparent that six weeks of AIPT provides the trainee with the equivalent of one and two-thirds years of school instruction. This calculation is based on 180 school days times 30 minutes of reading instruction per day (30 X 180 = 90 hours); this amounts to 90 hours per year. Six weeks of AIPT provides 150 hours of training (30 days X 5 hours = 150 hours). I'm not advocating this approach for elementary aged children; we might consider its application to adolescents (adolescents who might volunteer for such a venture).

In addition to the amount and intensity of instruction, motivation is a crucial factor. The recruit is well aware of the fact that much of what is to follow, job assignments, living arrangements, etc. depends upon his performance in AIPT.

To conclude, there are basic similarities in the military and private approaches to literacy training for adults. Both stress basic skill acquisition and use a phonetic approach. The materials used are either commercial materials already familiar to teachers, in the case of Adult Basic Education, or materials made for this purpose. Materials which are child oriented are avoided as these would be offensive to adults. In the army training program, instruction is compressed into a six week training period, in the ABE programs the amount of training depends upon the wish of the individual, though the materials and methods are not new, motivation is high, and the need and relevance of reading ability to daily living is very clear.

Concluding Remarks

I would like to conclude this paper with a word of encouragement and a word of caution. The growth of programs for young learning disabled children just over the past decade has been phenomenal. And, I think, we can anticipate the occurrence of a similar phenomenon in the very next few years for the older learning disabled students. In fact, it's already begun. Hopefully a fair share of the available resources at all levels, federal, state, and local will be directed toward secondary program development. I encourage all concerned to use these resources to the fullest and to work toward the goal of exemplary services for learning disabled junior and senior high school students.

Now, a caution! While the growth of learning disabilities programs is commendable, it hasn't been devoid of waste and error. A considerable amount of time, money, and effort has been spent on questionable and unproductive materials, curricula, and teaching systems. This second time around, I would like to see special educators adopt a more critical and skeptical attitude toward educational innovations and begin to demand evidence of their validity and usefulness before we accept them. Let's avoid overly enthusiastic but premature efforts and base our programs on a firm foundation of validation and evaluation.

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ADOLESCENTS WITH LEARNING DISABILITY: DEFINITION, IDENTIFICATION, AND INCIDENCE

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For all practical purposes, the field of learning disabilities began its history as an integrated and organized area of interest in 1963 at a conference sponsored by the Fund for Perceptually Handicapped Children. At this meeting, a national organization of parents and professionals, the American Association for Children with Learning Disabilities was formed and an advisory board was selected whose membership represented a broad spectrum of opinions about specific disorders of spoken and written language and about perceptual-motor performance. Five years later, professional educators in the Council for Exceptional Children who were interested in these children met and formed the Division of Children with Learning Disabilities.

These two nationally focused organizations have done much to generate public interest in people with learning disabilities, to initiate school programs for them, and to obtain funds to support special projects, teacher training programs, and some research in the area. The fact that both of these organizations chose to use the word "Children" in their names is some evidence that, at least at first, their membership was interested primarily in helping preschool and elementary aged children. Doubtlessly, the membership of these organizations was dominated by parents of comparatively young children, elementary level teachers and administrators, and elementary-oriented teacher educators.

From the beginning, however, there was a relatively small number of parents and professionals who felt that the movement was ignoring the needs of their older children. At every convention, they would complain justifiably that the program contained little, and often nothing, of interest to them. Along with the other members, they contributed their fair share to the efforts to make legislators, congressmen, state department personnel, public school administrators, and teachers aware of the unique instructional requirements of individuals with specific learning disabilities; and all too often they had to sit back and watch with resignation as programs were initiated only at the elementary levels. Of course, time was on their side, for children in elementary schools eventually do grow up and become adolescents in junior and senior high schools. With each passing year, therefore, the ranks of those who are interested in adolescents with specific learning disabilities have become larger and increasingly more vocal.

It is indeed ironic that only now, twelve years after the founding of the learning disabilities movement, the problems of young adults who have specific learning disabilities are beginning to receive a fair proportion of attention. Ironic because in no small way, the entire field is conceptualized on the study of the learning and behavior problems of individuals who were older than twelve. In fact, the basic principles and definitions, most of the assessment devices, and many of the remedial and treatment procedures associated with the movement today are readily traceable back to the work done during the years between 1880 and 1930 by those individuals who pioneered in the study of disorders of language, both written and spoken. To a considerable extent and in some cases to an exclusive extent, these researcher-clinicians studied older children, adolescents, and adults (e.g., K. Golstein, H. Head, H. Jackson, J. Hinshelwood).

In any event, now that programs for secondary level students with specific learning disabilities are being initiated, we find ourselves confronted with several momentous questions, e.g., how are the students to be conceptualized, ala a definition; how are they to be identified operationally; how many of these students exist; how are their problems to be assessed; how are they to be best educated; and what will happen to them after they leave school? The purpose of this paper is to grapple with the first three issues, i.e., definition, identification, and incidence.

Definition

The vast majority of professionals in the field have no difficulty whatsoever defining specific learning disabilities. They simply accept one of the many definitions which exist and quote it every time they are asked "What type of student do you want to serve in this new program? What is the target population for your research project? For what kind of student are you preparing teachers?" In fact, the definition one eventually chooses generally makes little difference educationally because all of them are quite similar regarding the basic points.

Whether one uses the definition offered by Kirk (1962), Myklebust (1963), Bateman (1965), the National Society for Crippled Children and Adults (1966), the Association for Children with Learning Disabilities (1967), or the National Advisory Committee on Handicapped Children (1968), the ideas incorporated are fundamentally the same. First, there must be a significant disparity between the abilities that the student does well and those that he does poorly (e.g., as between reading and speaking ability). Second, this observed disparity must somehow be caused by a disturbance involving some basic psychological process. Third, the problem cannot be caused directly by mental retardation, blindness, deprivation, etc. This last component in the definition is usually referred to as the exclusion clause. These three elements appear in one form or another in almost all of the definitions used commonly today, e.g., the definition offered by the National Advisory Committee on Handicapped Children,*

> Students with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written languages. These may be

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*I have taken the liberty of substituting the word "students" for "children" in this definition.

> manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance or to environmental disadvantage.

The above is without doubt the most popular definition around. Teacher trainers, school administrators, and researchers all evoke its use when they are asked to specify the population in which they are interested. Because it is written into the guidelines which govern the operation of learning disability programs in several states, because it was derived by a U. S. Office of Education sponsored committee, and because it is as good as any, this definition has a certain aura of officiality about it.

While definitions may serve various administrative purposes, this one and others have a basic shortcoming (or a saving grace, depending upon your point of view). They are actually projective devices, for in fact every professional interprets the meaning of the definition in terms of his own background, orientation, interests, and school needs. As a result of interpreting the definition differently, professionals also conceptualize the field of learning disabilities differently. The importance of this fact to educational practice is discussed in the next section.

In short, the question of selecting a satisfactory definition to describe the adolescent with specific learning disabilities is easily resolved. There are many suitable ones and any of those referred to in this section will suffice. Operationalizing the definition, however, is another matter which is not so easily dispatched, because to do this one must be able to express clearly just what that definition means to him. The manner in which this is accomplished will determine two critical aspects of educational programming--who and how many youngsters are to be served.

Identification

In his survey of the historical development of the field of learning disabilities, Wiederholt (1974) suggested that the ideas, orientations, and procedures which influenced the growth of the field could be divided conveniently into three more or less distinct stages--the foundation stage, the transition stage, and the integration stage. During one stage, the work was dominated by physicians studying brain injured adults with acquired disorders. In another stage, the emphasis was on the problems of childhood and the studies were done mostly by psychologists and educators. One stage focused on clinical investigations and theory building; another on the applied use of theories through test construction and program development. Therefore, professionals associated with any one of these stages were inclined generally to conceptualize the learning process somewhat differently from professionals in another stage.

The tendency was for the younger professionals to pick up the work of those who had gone before and to carry it further, making radical or minor changes in the process. In this way, many of the concepts about learning disabled individuals which were postulated originally in the 1800's continue to effect educational policies and programming today. Even though these contributions necessarily have experienced varying degrees of alteration and face lifting, they are still clearly visable and their influence is most critically felt in the area of identification.

For the most part, this important work in learning disabilities had been done outside of the public school system. After 1963, however, state education agencies began to mandate that the instructional needs of learning disabled youngsters should be met at the local level. With this, the center of action in the field of learning disabilities shifted to the public schools.

Over night, school administrator's had to plan and implement programs for these particular "handicapped" students. Unfortunately, many of them did not possess enough basic information to set up a conceptually sound program, and few had any clinical training in remediating these kinds of problems. Usually, the administrators would read what they could find, follow the state guidelines as they understood them, and in general try to apply to their settings the principles and identification procedures, which had been developed in laboratory schools, research classes, and other facilities that primarily served the more seriously affected clinical cases.

Of course, public schools operate quite differently from other settings in many respects; certain concepts and procedures which might work well in a private clinic have to be adapted considerably if they are to be used in the public schools. State guidelines governing the identification and placement of students differ; within states the policies of individual school districts vary regarding the selection of learning disability cases. Within a district, particular administrators and teachers may conceptualize the field of learning disabilities differently. Because of this, there is considerable divergence across the country relative to the procedures by which individuals are classified as learning disabled, even though the USOE definition enjoys an almost complete acceptance among professionals in the field.

In brief, there seem to be three basic approaches to interpreting, i.e., operationalizing, the definition. The first of these employs a "strict constructionalist" interpretation which conceives of learning disability as including little more than the "hard core," i.e., classically defined clinical types, especially the dyslexic, dysphasic, and/or the Strauss-syndrome student. The second approach employs a considerably more liberal interpretation which permits the inclusion of the underachiever, unmotivated, and poorly taught student, i.e., the "soft core" varieties. A third interpretation seems to adhere to the fundamental principles underlying the first approach but is not as rigorous in applying its standards for identification, though the standards which are applied are somewhat stiffer than those associated with the second approach.

The Strict Interpretation Approach to Identification

The basic ideas of the advocates of this approach regarding who is learning disabled and who is not, are remarkably similar to those espoused by the founding fathers of the field of learning disabilities. The adolescent's problems are interpreted within a medical frame of reference, the etiology is either demonstrated or suspected brain dysfunction, and the terms used to describe the observed problems have unmistakable pathological undertones. The cause of an individual's difficulties might be said to be brain injury, psychoneurological learning disability or some similar term; the specific problems which the youngster may evidence are diagnosed as developmental aphasia, dyslexia, strephosymbolia, dysgraphia, dyscalculia, catastrophic-syndrome, Strauss-syndrome, etc. This approach has been the most enduring of any and has been present at all stages in the development of the field. Its advocates interpret the definition strictly in terms of criteria set down by professionals who worked in the foundation stage.

There is little need to speculate about how the founding fathers would operationalize the USOE definition. Conjecture is unnecessary on this point because they have precisely described characteristics of the persons they have studied and followed up these descriptions with clear explanations of their significance. An example in the area of disorders of spoken language is provided by Gall,

> In consequence of an attack of apoplexy a soldier found it impossible to express in spoken language his feelings and ideas. His fact bore no signs of a deranged intellect. His mind (esprit) found the answer to questions addressed to him and he carried out all he was told to do; shown an armchair and asked if he knew what it was, he answered by seating himself in it. He could not articulate on the spot a word pronounced for him to repeat; but a few moments later the word escaped from his lips as if involuntarily. In his embarrassment he pointed to the lower part of his forehead; he showed impatience and indicated by gestures that his impotence of speech came from there. It was not his tongue which was embarrassed; for he moved it with great agility and could pronounce quite well a large number of isolated words. His memory was not at fault, for he signified his anger at being unable to express himself concerning many things which he wished to communicate. It was the faculty of speech alone which was abolished.(Head, 1926, p. 11)

Like Gall and others, Hinshelwood also studied cases which had sustained cerebral insult and as a result had lost a basic ability; however, his area of primary interest was reading. This interest in acquired disabilities in written language, was expanded to include two developmental forms as well.

These he called "congenital word-blindness" and "hereditary congenital word-blindness." He described an example of the former type as,

> . . . a boy, aged 14 years, bright, intelligent, and quick at games and in no way inferior to others of his own age, unless in his inability to learn to read. The greatest difficulty was experienced in teaching the boy his letters, and it was thought that he never would learn them. He had by constant application acquired a knowledge of the letters, but though at school and under tutors for seven years, and in spite of the most persistent efforts, he could only with difficulty spell out words of one syllable. Words written or printed seemed to convey no impression to his mind, and it was only after laboriously spelling them that he was able by the sound of the letters to discover their import. He read figures fluently, and could do simple sums correctly. The boy himself said that he was fond of arithmetic, and found no difficulty with it. The boy's schoolmaster, who had taught him for some years, said that he would be the smartest boy in school, if the instruction were entirely oral. (1917, 41-42)

It is apparent that the characteristics associated with the conditions observed by Gall (circa 1802) and by Hinshelwood (circa 1895) are consistent with the key provisions in the 1968 USOE definition of specific learning disability. First, both Gall and Hinshelwood noted the presence of discrepancies between their subjects' reading, math, and/or speech abilities, thus demonstrating the principle of disparity. Second, either by inference or by documentation, they both maintained that the individual's problem was the direct consequence of actual brain dysfunctioning, i.e., a process deficit involving the neural capacity of the brain to permit the orderly performance of certain neural events. Third, they both felt obligated to show that their cases were not caused by other conditions, notably mental retardation or deafness; this effort represents an early adherence to the intention behind the exclusion clause.

It should be pointed out that most of the founding fathers worked in fairly controlled clinical environments, e.g., a physician's private practice, a veteran's hospital, a university laboratory school, etc.; for the most part, they were interested in studying "pure" or relatively pure types of cases. Because of this, the problems concerning identification were fewer and less perplexing than those which face a public school diagnostician today. Then, as now, it was a relatively simple matter, using clinical judgment or test scores, to establish the presence or absence of significant gaps or imbalances in a youngster's learning patterns. Operationalization of the exclusion clause was also no problem for them, because they usually selected only those subjects whose observed problems were likely to be independent of or at least not seriously affected by other contaminating conditions, i.e., they were relatively pure cases.

The strict interpretation of the process clause would not have caused them any appreciable difficulty. Since they worked primarily with severely impaired

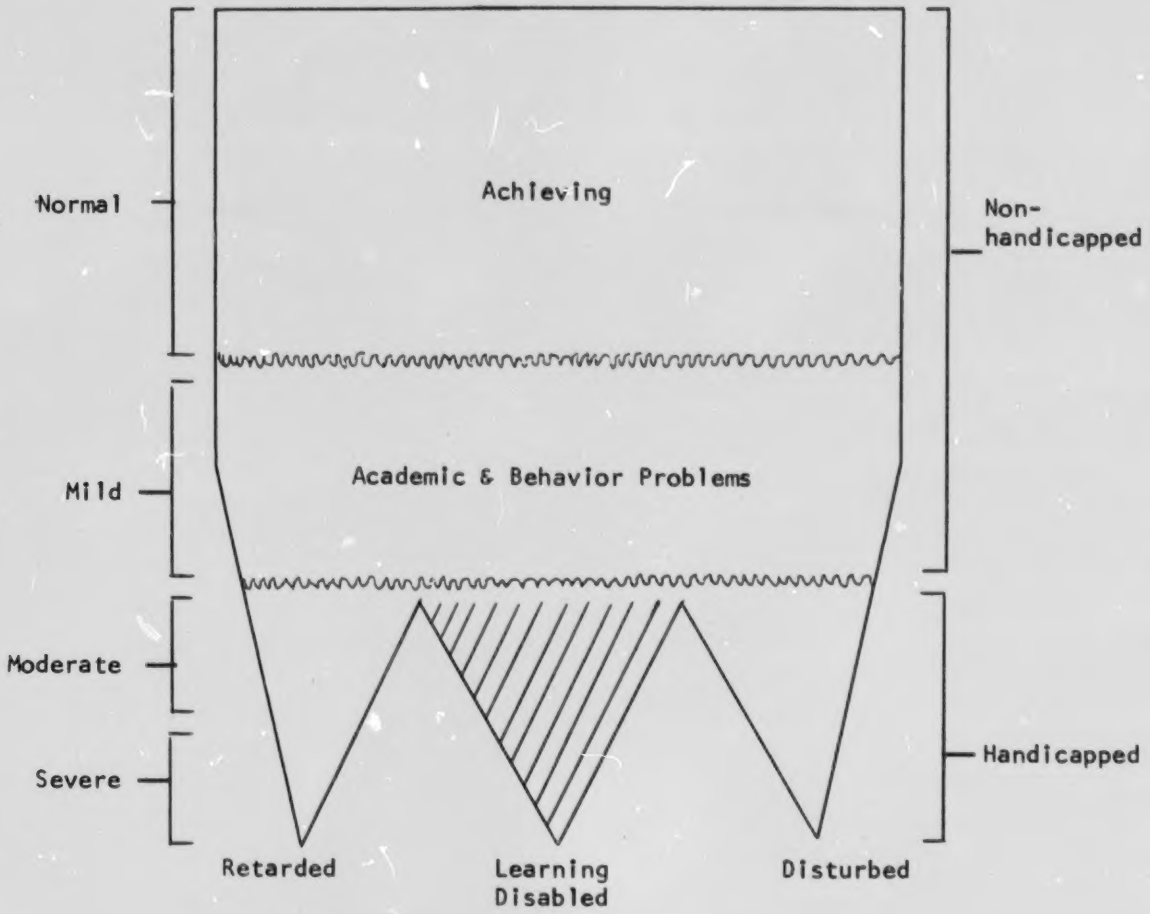
Normal
Mild
Moderate
Severe
Achieving
Academic & Behavior Problems
Non-handicapped
Handicapped
Retarded
Learning Disabled
Disturbed

Figure 1. The relationship among categories of nonachieving students from an official administrative point of view.

adolescents and adults, many of whom had acquired rather than developmental problems, it was usually possible to build a solid case in support of the presence of a neurologically-defined process deficit. In other words, in most of their cases, they could provide more or less convincing evidence that the abilities which the individual had lost had been intact prior to a particular trauma, e.g., an automobile accident, a shrapnel head wound, etc. Since the probability of nerve damage is related highly to such incidences, and since the loss of the ability corresponded with the approximate time of the trauma, it was thought that the neural damage had likely caused a disruption in the processes which were necessary for proficient speaking, thinking, reading, etc. Their criteria for diagnosing developmental problems were also straight forward and rigorous. If the youngster was bright, had been exposed to talented teachers, was motivated and achieving in other subjects, and was impaired seriously only in a single skill, e.g., reading, it was considered probable that he suffered from congenital word-blindness, strephosymbolia, or developmental dyslexia.

Although this approach to identification probably is declining in popularity, especially among public school oriented professionals, it retains a considerable influence with many people. Personnel in private schools and clinics and individuals in private practice have a particular penchant for the approach. Needless-to-say, educators and psychologists who are employed in medical facilities also gravitate toward acceptance of this orientation and it is certainly not uncommon to find a class or two for aphasic or brain-injured students in a public school. Many parents are practically addicted to the principles and terminology associated with it. I believe that it is fair to assert that the strongest advocates of this position tend to accept for the most part the theoretical positions, assessment procedures, treatment techniques, and identification criteria suggested by Strauss, Lehtinen, Cruickshank, McGinnis, Shedd, Orton, Myklebust, Wepman, and Eisenson, among others.

The Liberal Interpretation Approach to Identification

The public school system is the stronghold for advocates of a liberal interpretation of the learning disability definition. To understand why this is the case, one needs to know something about the realities of present day public school administrative practices concerning the management of nonachieving students.

There are four major kinds of nonachieving students in the schools: the retarded, the learning disabled, the disturbed, and a large mass of nonhandicapped youngsters who for a variety of reasons are simply not meeting the academic or behavioral expectations of the school. The first three of these groups represent fundable categories of the handicapped and exist in mild, moderate, and severe forms. The last and much larger group is not an area of the handicapped; it does not qualify for special education services in most states, even though group members are a constant source of problems for teachers. Present rules governing identification are exemplified in Figure 1.

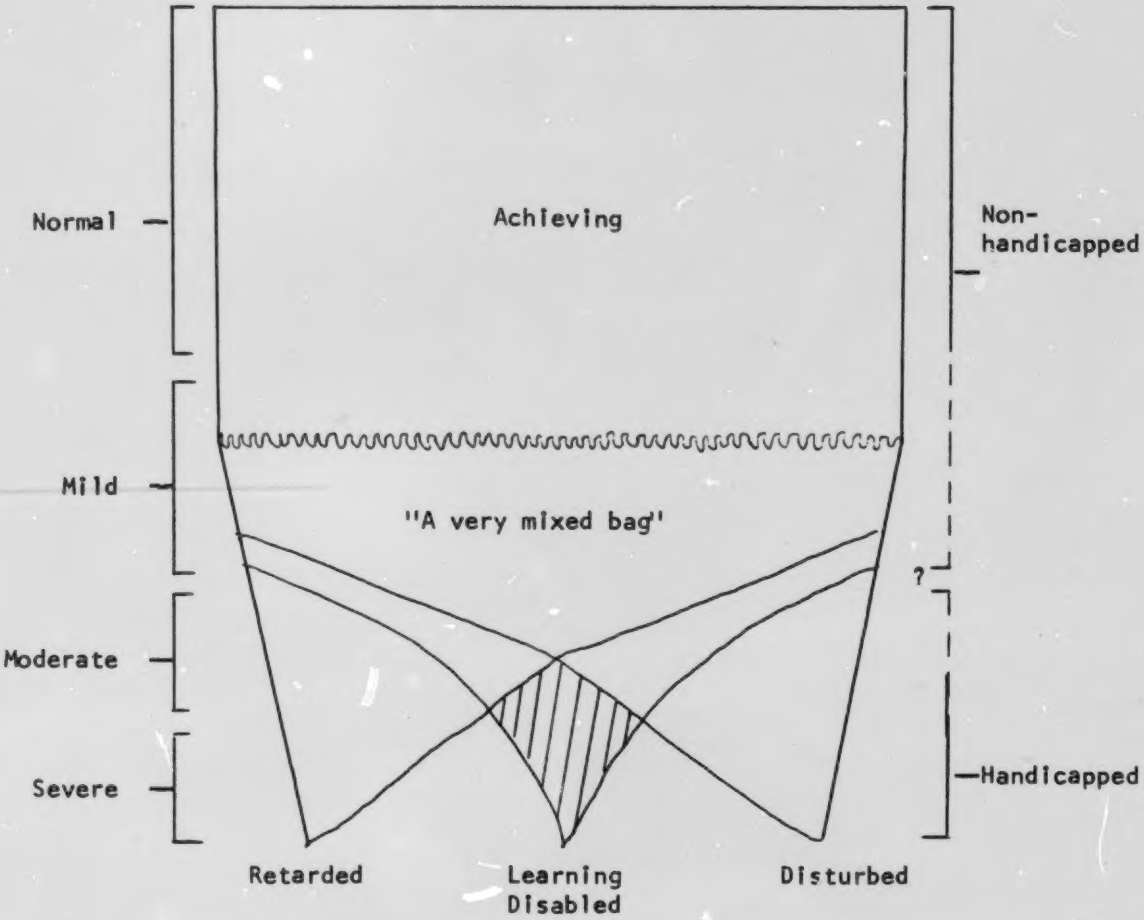
Normal
Mild
Moderate
Severe
Achieving
"A very mixed bag"
Non-handicapped
?
Handicapped
Retarded
Learning Disabled
Disturbed

Figure 2. Actual relationship among categories of non-achieving students.

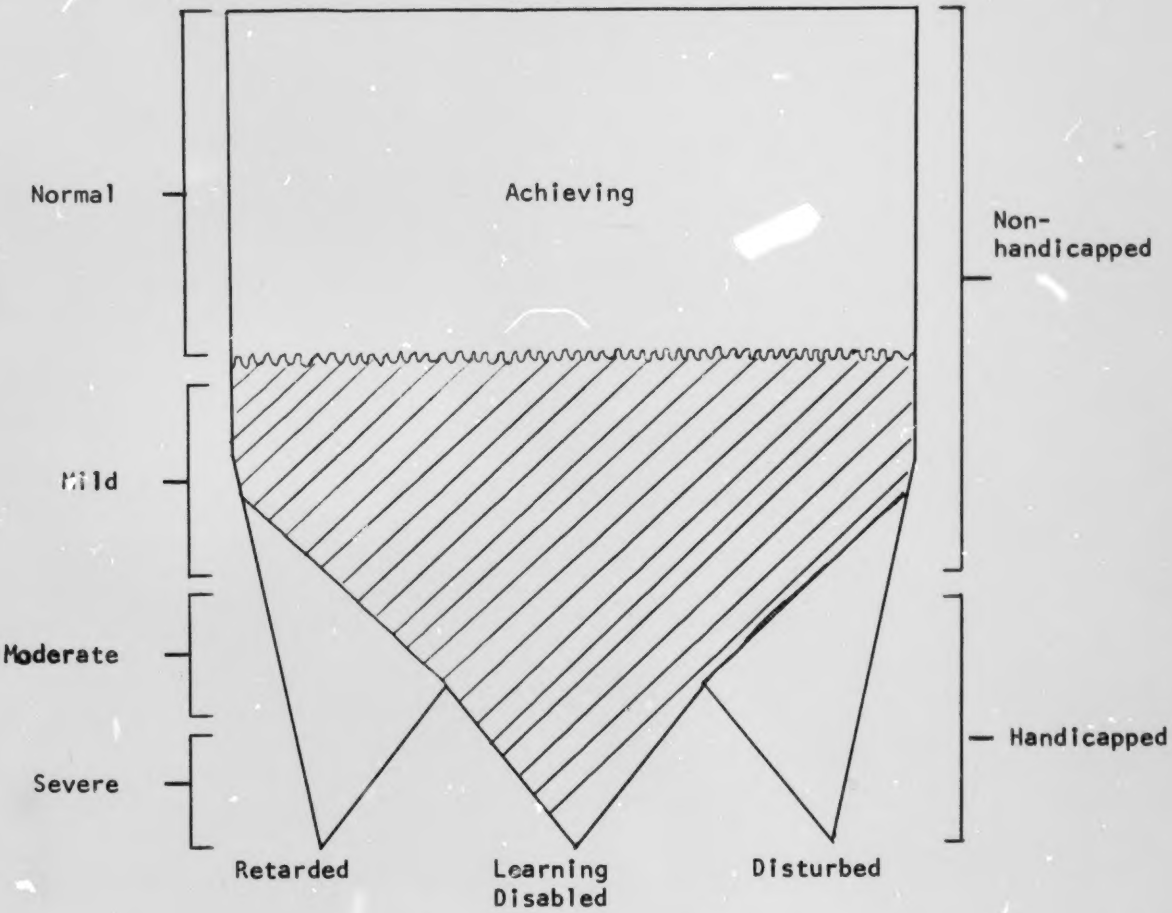
Normal
Achieving
Non-handicapped
Mild
Moderate
Severe
Handicapped
Retarded
Learning Disabled
Disturbed

Figure 3. Learning disabilities according to a liberal interpretation of the definition

Of course, public school administrators, diagnosticians, and teachers all recognize that in practice, this system does not operate as cleanly as the figure might indicate. The number of "pure" or even relatively pure cases of retardation, disturbance, or learning disability are quite small, and these are readily identifiable. The problems pertaining to identification, however, become horrendous when someone has to decide whether a student with a mild or moderate difficulty is mildly disturbed, is mildly retarded, is mildly learning disabled, or is a nonhandicapped youngster who is merely experiencing some school-related difficulties. A more realistic presentation of the situation in the schools is depicted in Figure 2.

The vast majority of students who have difficulties in school do not evidence either serious problems or purity of symptoms. Consider for example the case of Mary:

> . . . a 13 year old girl from an impoverished home with a history of prematurity and an equivocal EEG who reads 3 years behind CA level. Mary's measured intelligence is indicative of dull normal functioning, though her performance of a few cognitive tasks was normal for her age. She is very disinterested in school and does not want to attend. As a result, she is involved often in disruptive episodes with fellow students and teachers.

Is Mary handicapped? If so, is she retarded, disturbed, learning disabled, or all three? Who could say with any appreciable amount of confidence? The cold reality is that as the degree of school failure becomes milder, the confusion among categories becomes greater. When identifying mild to moderate cases, one is never sure just what he is dealing with; present-day administrative policies, which require that a student be classified as having some type of handicap before he can receive special educational services, force school personnel to pretend that they can sort problem students into discrete categories with some degree of accuracy.

To hard pressed school administrators and diagnosticians, the recognition of learning disabilities as a fundable category of the handicapped has been a god-send. By applying a liberal interpretation to the learning disability definition, they can provide special services to all students who are experiencing any kind of significant problem in school, and do so under the "learning disability" label. These students include those with severe learning disabilities, as well as countless other individuals who would otherwise be called educable retarded, mildly disturbed, disadvantaged, underachieving, unmotivated, etc. Administratively, all of these newly acquired "learning disability" cases would be considered "mildly handicapped"; and as a result, the number of students qualifying for special services is increased markedly (see Figure 3). The method by which the USOE definition is interpreted to permit this will be discussed next.

Being pragmatic persons by nature, the advocates of a liberal interpretation of the USOE definition dismiss its ambiguous and superfluous statements and conclude that:

> Students with special learning disabilities exhibit problems in listening, thinking, reading, writing, spelling and/or arithmetic.

Doubtless this is the operational definition of learning disabilities which is used in many, perhaps most, of the schools today. In this approach, the criterion for identification is basically low achievement in school work.

There is evidence which indicates that this approach to identification is being used extensively in the schools. Kirk and Elkins (1975) investigated the nature of the pupils referred to the Title 6-G projects across the nation and reported that the vast majority of the cases enrolled were not at all learning disabled according to their criteria. Their conclusion confirms my own suspicions which are based on observation of many public school learning disability programs. In my experience, students enrolled in learning disability classes evidence an almost total absence of hyperactivity, distractibility, linguistic, or specific conceptualization problems. A reading of the cumulative folders of these students all too often leads me to conclude that the majority of those enrolled are either dull normal pupils achieving at expected levels or they are children with comparatively high IQs who are simply underachieving. In addition to low IQ, poor teaching, insufficient support for school at home, and pupil disinterest are prime suspects as causes for the poor achievement.

Yet, the same definition which the purist uses, is quoted as evidence that these youngsters are indeed "soft core" learning disability cases, implying that they are more or less mild forms of the same cases that are identified using a strict interpretation (of course, most of them are not). Those who would apply a liberal interpretation can easily satisfy the principle of disparity. They would argue: don't all underachievers, including those from impoverished or affluent homes, have a discrepancy between their estimated intellectual potential and their actual school performance? Couldn't all cases which presently qualify for remedial reading and arithmetic also satisfy the disparity clause in the definition? Couldn't natural variations between the abilities that an individual does well and those that he does poorly be interpreted legitimately as significant gaps in learning and thereby qualify retarded individuals or anyone else for that matter as learning disabled?

The exclusion clause is manipulated most adroitly by pointing out that the intent of the phrase is to exclude cases where retardation, disadvantagement, etc., are the primary cause of the specific learning disability. Surely it was not the intention of the definition that retarded individuals who had learning disabilities in addition to their retardation would be arbitrarily excluded. The process deficit clause is dispatched by broadening the meaning of the term. These advocates reject the idea that the processes mentioned in the definition are to be equated exclusively with psychoneurological processes. Instead, they assert that many abilities, such as arithmetic, oral reading, etc., are collections of sequenced skills and that these can be referred to as the processes of reading, of speaking, of writing, etc. Therefore, in this sense, can't individuals who fail to achieve in these areas be said to have some kind of process deficit? They could argue, of course, that reading, spelling, speaking, were as much psychoneurological processes as those described in the other approaches to identification.

Advocates of this liberal interpretation are quick to point out what they consider its advantages to be:

1. Since diagnosis in terms of assigning students with mild to moderate problems to discrete categories of the handicap are at best suspicious, one might just as well treat all such students as a single category.

2. Since most students with mild to moderate problems are good candidates for mainstreaming efforts, it is convenient to consider them administratively as members of a single group.

3. Regardless of whether they are diagnosed as retarded, learning disabled, or disturbed, students with mild to moderate problems resemble each other remarkably regarding their symptoms and instructional needs. For example, a student diagnosed as mildly learning disabled may be more like a student diagnosed as mildly disturbed than he is like a student diagnosed as a severe learning disability case (using the strict interpretation).

4. Finally, for reasons of their own, parents of problem students prefer the label "learning disabled" to the labels "retarded" or "disturbed."

In all honesty, however, I believe that most school personnel who advocate a liberal interpretation of the definition would prefer a basic change in the rules governing funding, identification, and placement practices which would take them to a considerable extent out of the diagnosing-as-handicapped business. Such a change might permit students, especially those with mild to moderate problems, to receive services without having to be labeled as handicapped. Under such a system, school personnel would simply assign these students to the program which they need, e.g., vocational education or college preparation, and provide whatever supportive services are necessary to accommodate any problems which might interfere with the course of study, e.g., limited intelligence, poor reading and speaking ability, etc. Appropriate supportive services might include the availability of resource room or consulting teacher programs. In all probability this approach could manage successfully most of the handicapped and nonhandicapped students in the school who evidence mild and moderate learning and behavior problems. Under such an arrangement, special education would become a program which provides special services to all students who need them rather than having to confine its attention exclusively to handicapped populations.

Truly learning disabled students, i.e., the hard core variety, probably should continue to be diagnosed and labeled so that their progress in school can be monitored carefully. In this time of rampant mainstreaming, a reform which is long overdue, we must make sure that the unique and often serious difficulties associated with some learning disabled youngsters are being remediated or compensated for and that the students are receiving the programs which are in their best interest whether these are provided in self-contained or mainstream programs. With all this fuss about mainstreaming handicapped students, most of whom have only mild problems to begin with, we must ensure that the severely handicapped youngsters don't get lost in the shuffle.

The practice of defining all children who have school-related problems as "learning disabled" cases may well be no more than an administrative convenience--a conceptually indefensible but practical necessity at the present time for getting services to students who need them. The expansion of non-categorical approaches in education, an increased concern about the individual needs of problem learners on the part of regular education teachers, and successful mainstreaming and zero reject programs may one day make it possible for many public school professionals to forego the liberal interpretation of the learning disabilities definition.

The Modified Strict Approach to Interpretation

There is a third approach to identification which has wide acceptance in both clinical and public school settings. Its advocates retain close conceptual and historical ties with those who support a strict interpretation of the learning disabilities definition but recognize some of the realities of operating public school programs. On the other hand, while sympathetic to the unique problems of operating programs for learning disability students in public schools, these professionals have not yet accepted the pragmatic solutions which the advocates of the liberal approach have felt compelled to make. They fear that the "truly" learning disabled students, a relatively small group, will be lost in the thrust to accommodate the "hordes" of students which are identified as learning disabled by the liberal interpretation of the definition. They argue that state legislators will not long endure an interpretation which would permit 50 to 60 percent of the scholastic population of many schools to be administratively diagnosed as "handicapped," and prophesy that when a legislative reaction comes, as it eventually will, it will be the interests of the real learning disability students which will suffer.

If a student is to be recognized as learning disabled by advocates of this approach, he will have to evidence some serious discrepancies in reading, speaking, writing, language, etc., and these problems will have to be centered on one or two of these areas and not on them all, i.e., he must have specific rather than general problems. Unlike the liberal interpretation, more than lip service is paid to the exclusion clause and efforts are made to demonstrate that the discrepancies are not caused by other contaminating conditions, especially mental retardation and socioeconomic deprivation.

The major difference between this approach and the others, however, is in the manner in which the process deficit phrase in the definition is conceptualized. Advocates of this approach have a considerable "ability" orientation which is manifested in their general acceptance of the applied theories set forth by Kirk, Frostig, Meeker, and others. They conceptualize processing deficits in terms of hypothesized psychological ability constructs, rather than in terms of brain dysfunctions as is the case in the strict interpretation. For example, if the student is referred because he is a poor reader, their evaluation would attempt to identify those abilities basic to reading which were defective--auditory or visual memory, closure function, various psycholinguistic, cognitive, or perceptual disabilities. Thus, poor readers who also flunk such tests as the Bender Visual-Motor Gestalt Test, the Graham-Kendall Memory for Designs Test, selected sub-tests from the WAIS, or who are judged clinically as having some kind of difficulties in "processing" become candidates for the learning disability category.

With such an orientation, it is easy to see why advocates of this approach are appalled by the cavalier attitude toward, or complete disregard for, the value of conducting differential process evaluations which is expressed by many professionals who take the liberal approach to identification. To them, it is essential to determine a student's particular learning style, memory deficits, modality perference, and/or specific perceptual, cognitive, and psycholinguistic processing strengths and weaknesses, for not only does it lead to what they consider more enlightened programming but they believe that it is a key element in identifying the student as learning disabled.

When applied in the schools, this approach serves one valuable function. It enables administrators to sift through a large body of referrals and to select a relatively small sub-group of students which will constitute the learning disability population. Therefore, learning disability cases can be distinguished from disadvantaged, nonmotivated, and/or poorly taught students. The primary shortcoming to this approach is simply that its basic assumptions have not been clearly established as valid. The bulk of the current research findings, on the contrary, strongly suggest that the process variables, which are measured and trained by today's tests and activities, play an insignificant role in academic or linguistic competence. Should it be that the assumptions are invalid in fact, then the entire approach would have to be considered arbitrary and dismissed.

The Incidence of Learning Disabilities Among Adolescents

While some attempts have been made to determine the incidence of learning disabilities among school-aged students in general, I know of no study undertaken specifically at the secondary level. Therefore, the actual number of adolescents who have learning disabilities is unknown at the present time. Even if one were to accept the incidence figures associated with the over-all school population as being reasonably valid estimates for the secondary-aged sub-group, the question of incidence would still be far from resolved because of the general lack of agreement among them.

After specifying the difficulties which are involved in estimating the incidence of learning disability, Kirk (1972) suggested that "the best guess is that from 1 to 3 percent at the least, and possibly 7 percent at the most of the school population require special remedial education" (p. 45). The validity of this estimate has received some support from Wissink (1972) who surveyed 100 "leaders" in the learning disability area (of which 39 responded) regarding their estimates of the incidence of learning disabilities in a school population. Half of the respondents estimated the incidence to be 5 percent or less, though almost a third thought that it was 15 percent or higher.

Several comprehensive surveys of school populations have been completed in an effort to establish an exact incidence, but these have had little success in establishing a set figure. After reviewing 21 of these studies, Bryant and McLoughlin (1972) concluded that the incidence of learning disabilities ranged from 3 to 28 percent, half being above 13 percent.

Ultimately this lack of agreement among studies can be traced back to the absence of an agreed upon, definitive, and operational definition of "learning disabilities." Some professionals who use a strict interpretation conceive of learning disabilities as including little more than the "hard core," i.e., classically defined clinical types, especially the dyslexic, dysphasic, and/or Strauss-syndrome youngster. To them, no more than 3 percent seems reasonable, and these are more likely to be found in private schools or clinical settings than in public school operations. Others feel more comfortable with the relaxed, liberal interpretation which includes the underachieving, "unmotivated," and poorly taught students, i.e., the "soft core" varieties. To them, an incidence figure of 15 to 30 percent seems minimal, for in those urban school districts which are characterized by large concentrations of minority, economically impoverished people, the figure is reported by them to be much higher.

Until such time as there emerges an operationally useful definition that can be used to develop specific criteria to identify precisely the child under question, we will have to be content with widely disparate "guesstimates" regarding the incidence of learning disability in the school population.

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EXPLORATORY OCCUPATIONAL EDUCATION FOR LEARNING DISABLED ADOLESCENTS

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In the vast literature on learning disabilities that has accumulated during the past decade, attention has been limited almost entirely to the pre-school and elementary school child. Only a few special educators have addressed the problem of educating the learning disabled adolescent. In this scant literature, there can be found very little material on occupational education (vocational education) for these pupils, either in the way of research or in program descriptions designed to encourage the serving of the learning disabled by occupational education programs.

Simches (1975) in analyzing the hazards which the current economic situation brings to the handicapped, points out that in time of high unemployment, workers without appropriate training face reduced work opportunities and that the handicapped face more than the usual difficulty in competing for jobs. In this context, Martin (1974) says: "Experience tells us that 40 percent (of handicapped young people who have not received career education) will be severely underemployed and subsist at the poverty level, 10 percent will be partially dependent, and 30 percent totally dependent upon society for their existence, sometimes requiring institutional care." Clearly, occupational preparation for the handicapped should be a high priority of the educational system.

In the literature of vocational education, not very much attention has been paid to vocational education for the handicapped through the years. Until very recently it was rare for special pupils to be welcomed into vocational education programs and there were almost no vocational education programs (that is, programs operated by vocational educators) designed specifically to serve the handicapped.

This attitude began to change when the Vocational Education Act of 1963 urged that vocational education be more responsive to the needs of persons whose special problems stand in the way of success in traditional vocational education programs. But the real impetus for inclusion of the handicapped in vocational education programs came in 1968, when the 1963 Act was amended to require that 10 percent of the federal funds for vocational education be used for the handicapped. As a result of this funding, some school systems developed programs but as Matters (1974) points out, only a small minority of "special" students have profited from a good quality vocational program. This author goes on to discuss the questions of how to integrate handicapped students with regular vocational students, and how to set up special vocational programs for handicapped students.

There are some effective programs in existence. Bergstein and others (1973) have described six exemplary occupational education programs for the handicapped, five of which serve pupils who might be considered learning disabled. Even so, we have not nearly enough occupational education to serve handicapped adolescents, and what we do have is often not sufficiently comprehensive to be fully effective. Most programming for these pupils lies in the future.

Koppitz (1971), after a five year follow-up study of children with learning disabilities, outlined a "comprehensive special education program" in which pupils with learning disabilities would, after grade eight, have four major options: an academically oriented high school program, a general high school program, a self-contained, academically-oriented special class, or a vocational program. She recommends that the vocational program include one or two years of pre-vocational training and the study of basic skills, followed by one or two years of skills training in a work-study program.

A New Jersey Department of Education publication (Buontempo, McNulty, and Ringelheim, 1974) proposes "an educational strategy for employability" consisting of five major phases: vocational evaluation, self and career awareness, skill training, getting started in a real job, and follow-up. The "self and career awareness" phase as described by these authors is very similar to what will be referred to here as "exploratory occupational education."

The literature contains very little that will help school systems to develop occupational programs to serve learning disabled youth. Much of the research and most of the program descriptions found in the literature relate to other types of handicaps--most frequently, mental retardation, orthopedic handicaps, visual and auditory impairment--and not to learning disabilities. There has been very little attention given to the exploratory phase of occupational preparation, that phase which gives the pupil enough experience--both academic learning and "hands on" experience--in one or more occupational fields that he and his teachers can determine (1) what occupation appears most suitable for him on the basis of his demonstrated abilities, aptitudes, and interests and (2) what training program is most appropriate to enable the student to achieve his selected occupational objective.

While some young people can presumably make good occupational choices on the basis of their life experiences, supplemented by the study of occupations and vocational counseling, most students with learning handicaps need something else--actual occupational experience. In the past, too many such students have received this exploratory experience through placement in terminal occupational preparation programs in which they were unsuccessful; a succession of failures often reducing the probability of ultimate success.

What is proposed here is a specific separate program of occupational exploration in which there is no failure, but perhaps a conclusion that a particular occupational field is not suitable--"not for me" as the student might say. It would appear useful to get into the literature a description of an exploratory occupational program. To provide such a description is the major purpose of this paper.

It should be stated at the outset that such a program can be carried out at little additional expense to the school system after the initial expense for equipment and perhaps remodeling of facilities, since the candidates for the exploratory program are already members of the student body. At issue is what their instructional program will consist of. The program proposed here can replace program elements that are thought to be less effective in preparing handicapped pupils for a non-dependent adult life (e.g., traditional academics, non-vocational industrial arts, and home economics, etc.).

I will use as a model the Exploratory Occupational Education (EOE) Program developed (actually still being developed) by the Board of Cooperative Educational Services (BOCES) of Putnam and Northern Westchester Counties, New York, a regional public school agency serving twenty-one public school districts. The program grew out of a research and demonstration project which developed the model for the Exploratory Occupational Education program now conducted at BOCES. The final report of the project (Irvine and Plumpton, 1970) recommended that an exploratory phase be made a part of vocational preparation programs that serve handicapped students.

The EOE program at BOCES serves approximately 320 pupils each year in a building recently constructed to house the program. About one-half of these pupils attend special classes operated either by BOCES or the home school districts. The other half are enrolled in regular school programs in the participating school districts.

The application for each pupil referred by the home school or by the BOCES special education staff for admission to the EOE program is considered in a conference attended by one or more representatives of the staff presently working with the pupil and a team of EOE staff members representing teaching, guidance, and administration.

The EOE program is designed to serve learning disabled pupils along with pupils with other types of handicaps. Admission is not based in any way on diagnostic labels, but upon the need and readiness of the pupil. The records of the pupils in the EOE program reveal a variety of diagnoses, but the program has essentially "delabeled" the students. In the EOE population, intelligence typically ranges from moderate mental retardation to bright normal and academic achievement in tool subjects from first or second grade to senior high school level. Class size is kept small, generally limited to ten, to allow for the individualization necessary in the rather heterogeneous groups.

While the qualifications and needs of each referred pupil are considered on the basis of their individual merits, the following guidelines have been developed for the use of the team in making decisions regarding admission to EOE:

1. Pupils will usually be admitted at age 15 or 16.

2. To be admitted, a pupil must have demonstrated a level of maturity that suggests he is ready to begin the process of occupational preparation. In assessing maturity and readiness, the team takes into consideration such factors as ability to accept direction, ability to work independently, attendance record, and safe work habits. It is considered undesirable to apply rigid admission requirements, but rather the staff considers whether EOE is the best educational alternative for a pupil at the present time; the factors that enter into the assessment of readiness for the program must be applied with great sensitivity and insight because these pupil characteristics often change dramatically for the better when a pupil begins the EOE program.

Pupils attend the EOE program for one-half of each school day, either morning or afternoon, being transported to the regional campus from their home schools. The half-day at EOE is divided about equally between occupational instruction in a shop setting, conducted by a vocational teacher, and related academic instruction provided by a special education teacher. While an occupation is being explored in the shop, the related academic instruction focuses on the vocabulary of the occupation, and the mathematics and reading skills needed, and a study of the occupation itself--working conditions, duties, required knowledge and skills, etc. The shop and classroom areas are, in every case, adjacent to each other so that communication is fostered between the two teachers who must function as a team to assure a high degree of relatedness between the shop activities and the academic instruction. There are eight such shop-classroom areas.

Listed below are the occupational areas that are available for exploration in the BOCES EOE program, with the specific occupations that are explored in each area.

OCCUPATIONAL AREA	OCCUPATIONS
1. Metal Trades	a. Draftsman b. Drill Press Operator c. Appliance Repairman d. General Machine Operator e. Ironworker f. Lathe Operator g. Machinist h. Sheet Metal Worker i. Welder

OCCUPATIONAL AREA	OCCUPATIONS
2. Automotive Trades	a. Auto Body Repairman
	b. Auto Mechanic
	c. Oxyacetalene Welder
	d. Service Station Attendant
	Lubrication Specialist
	Pneumatic Tire Specialist
	e. Small Engine Repairman
3. Building Trades I	a. Bricklayer
	b. Carpenter
	c. Concrete Finisher
	d. Resilient Tile Mechanic
	e. Roofer
4. Building Trades II	a. Dry Wall Applicator
	b. Electrician
	c. Insulation Mechanic
	d. Maintenance Man-Custodian-Cleaner
	e. Painter
	f. Plumber
	g. Taper
5. Office Occupations/ Distributive Education	a. Bookkeeper
	b. Clerk
	c. File Clerk
	d. Messenger
	e. Receptionist
	f. Secretary
	g. Typist
	* * * * * * * * * * * * *
	h. Cashier
	i. Receiving Clerk-Stock Clerk
	j. Salesperson
	k. Shipping Clerk
	l. Window Trimmer
	m. Wrapper
6. Food Trades	a. Baker
	b. Beverage Maker
	c. Cafeteria Worker--Steamtable
	d. Cashier
	e. Cook
	f. Counterman and Countergirl

OCCUPATIONAL AREA	OCCUPATIONS
6. Food Trades	g. Dishwasher
	h. Salad Maker
	i. Sandwich Maker
	j. Short Order Cook
	k. Waiter--Waitress
7. Cosmetology/Health	a. Beautician
	* * * * * * * * * * *
	b. Day Care Center Aide
	c. Home Attendant
	d. Hospital Housekeeper
	e. Hospital Orderly
	f. Hospital Tray Girl
	g. Hospital Ward Clerk
	h. Licensed Practical Nurse
	i. Nurse Aide
8. Agriculture Occupations	a. Florist
	b. Gardener
	c. Greenhouse Worker
	d. Greenskeeper
	e. Groundskeeper
	f. Landscaper
	g. Nurseryman

Typically, pupils explore one occupational area each semester. It is possible, however, for a student to change from one area to another at any time.

Most pupils remain in the EOE program for two years, but arrangements can be made for a pupil to leave for the next phase of his occupational preparation whenever he is ready to advance. The major alternatives for final occupational preparation are vocational school, a cooperative work-study program, and vocational courses developed by the special education department to serve pupils who lack the academic skills needed for success in the vocational school.

Much of the success of the EOE program can be attributed to the use of vocational teachers to provide the occupational instruction, and special education teachers to provide the related academics, as well as the fact that they teach in adjacent spaces; school systems considering the development of an exploratory occupational education program should give close attention to this feature, which the BOCES staff considers essential. It is also clear that the program administration must include expertise in occupational education as well as knowledge of how to educate pupils with learning problems. Persons desiring more detailed information are advised to obtain the EOE curriculum guide (Bamford, et al.) and are invited to visit the program. On the basis of five years of experience with EOE in its present form, we are convinced that our learning disabled and other handicapped students feel better about school and themselves, and achieve better in the final phase of occupational preparation, than they would without an effective exploratory program.

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TOWARD A TAXONOMY OF REMEDIATION

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The promise of remediation for the youngster with learning disorders carries the professional assurance that appropriate remedial treatment can be specified and subsequently executed to benefit the child. With sophistication we speak of principles of remediation, of rules of clinical teaching, of pinpointing areas of needed instruction, and of programs of corrective treatment. Prospective specialists expect that as part of their educational preparation they will become privy to the secrets of the methods of remediation.

What are these methods of remediation? Does a differential diagnosis direct the clinician to the prescribed remedial cure? Do assessment procedures lead to a corrective therapy program? Doubt about these promises has been voiced by several authorities. For example, McGrady (1971) speaks of the "diagnosis-remediation gap," Silberberg and Silberberg (1969) discuss the "myths of remediation education," and Bateman (1974) questions the existence of educational implications for MBD.

The purpose of this paper is to classify what remediation means to various scholars and practitioners within the field of special education. Any science begins with a codification system because it is necessary to first organize the known information in the field. A system of classifying remediation is needed to help sort out the various approaches and meanings of remediation. A global model of remediation or a taxonomy is one way to sort out these diverse interpretations of remediation and organize them into a system of categories.

As shown in Figure 1, remediation is divided into three ways of analyzing remediation: (1) by analyzing the child, (2) by analyzing the content, and (3) by analyzing the environmental conditions under which the child learns. Each type of analysis is in turn sub-divided into specific categories of remediation so that all nine categories of remediation are identified. A review of each category suggests that while each category has particular merit, each also has certain shortcomings and limitations.

ANALYSIS OF THE CHILD

The first three categories of remedial approaches concentrate on an analysis of the child and how he functions. The categories are cognitive processing approaches, sequential stages of development approaches, and test-related approaches to remediation.

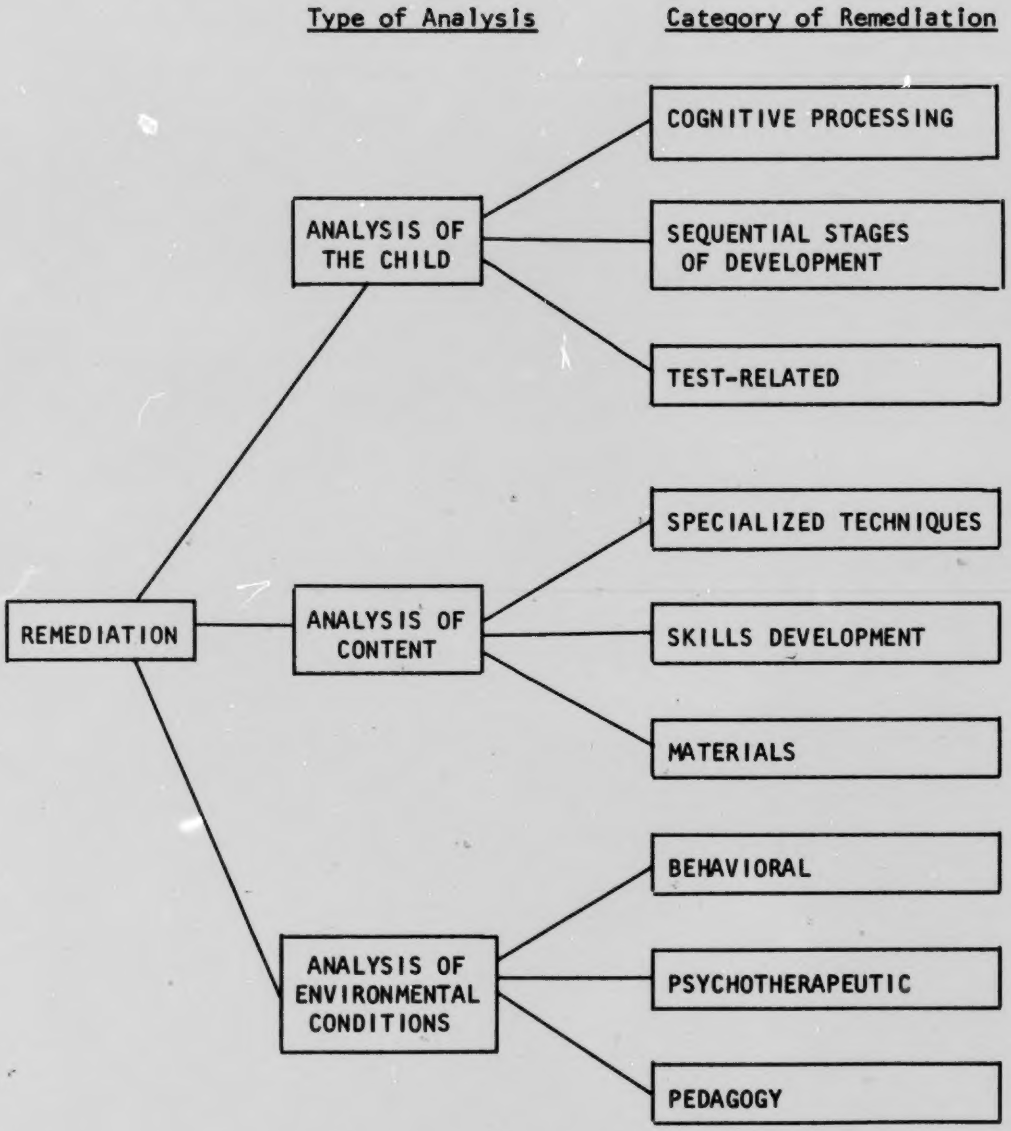
Type of Analysis
Category of Remediation
REMEDIATION
ANALYSIS OF THE CHILD
ANALYSIS OF CONTENT
ANALYSIS OF ENVIRONMENTAL CONDITIONS
COGNITIVE PROCESSING
SEQUENTIAL STAGES OF DEVELOPMENT
TEST-RELATED
SPECIALIZED TECHNIQUES
SKILLS DEVELOPMENT
MATERIALS
BEHAVIORAL
PSYCHOTHERAPEUTIC
PEDAGOGY

FIGURE 1. A CLASSIFICATION OF REMEDIATION

Cognitive Processing

Probably the approach to remediation most readily associated with the field of learning disabilities is that of cognitive processing. Cognitive processing refers to knowledge of how a child processes information. We speak of the perceptual modalities concept or the child's pathways of learning. We ask: How does this child learn? How does he process information? In this approach we assess a child's visual, auditory, memory, and haptic abilities, and compare and contrast his strengths and weaknesses. With such information we assume to know the child's processing style which, in turn, suggests appropriate teaching strategies. Even within this approach to remediation, however, once the child's processing abilities are determined, we have several different approaches to teaching. Some authorities say--select procedures that utilize the child's strength; others advise the therapist to build up the deficit areas within the child; still other authorities suggest to do both simultaneously, both build weak areas while teaching through the strengths (Lerner, 1971).

While the modality or cognitive processing theory provides a seemingly fresh, logical, and most appealing view of children with difficulty in learning, we find discussions of visual, auditory, tactile, and kinesthetic abilities in the early writings of Monroe (1935) and Fernald (1943) some forty years ago. Yet research evidence is still lacking to substantiate the efficacy of the modality approach to remediation (Mann and Phillip, 1971, Cohen, 1967, Hammill, Goodman, and Wiederholt, 1974, Hammill and Larsen, 1974, Hammill and Larsen, 1974a).

A further criticism of this approach is that teaching methods cannot be determined to be essentially visual or auditory. That is, the "phonics" approach to teaching reading requires an integration of both visual and auditory skills as do approaches that are so-called "look-say" methods.

Remediation for many specialists in learning disabilities is based upon the cognitive processing theory of learning disabilities. Certainly it is an important category of remediation. In spite of the recent critical probes into this approach to remediation, it provides an important framework for dealing with a youngster's learning problems.

Sequential Stages of Development

A second approach to remediation that analyzes the child may be referred to as the "sequential stages of development approach." This approach postulates a particular hierarchy of development that is observed within normal child growth. This is, children develop through a series of stages in their maturation process. One model, for example, refers to these stages as "sensation, perception, memory, symbolization, conceptualization" (Johnson and Myklebust, 1967). Piaget provides another schematic description of child development: sensorimotor period, pre-operational period, concrete operations stage, and the formal operations stage (Flavell, 1963). Getman (1965) presents another hierarchical series of stages leading to visualization.

Such models presume that the development in each of the stages is sequential; that development must be successfully completed at each of the previous stages before the subsequent level can be successfully added. The diagnosis consists of determining at which stage the child is--that is, find the lowest level that the child has not successfully completed. Remediation consists of helping him to successfully complete his growth at the unfinished phase of growth and then helping him go on to the next level.

Thus, if the child is perceptually handicapped, growth has not been complete or successful at the perceptual stage of development. Remediation in this case would require training in perceptual skills. The assumption is that further growth and learning is dependent upon an earlier stage, e.g., successful sensorimotor or perceptual-motor development. Remediation would consist of building up skills assuming such skills are a prerequisite of further growth in learning.

Remediation, for those who advocate approaches such as that of Kephart or Getman, falls within the sequential stages of development approach to remediation. Again, while the theory makes apparent sense and has appeal, research thus far is lacking to substantiate the approach (Goodman and Hammill, 1973). The motor remediation in general leaves a gap between the motor development and academic development.

Test-related Approaches

Another approach to remediation that emphasizes the analysis of the child is the "test-related approach." The theory here is that a particular diagnostic instrument provides a system to pinpoint areas that need remediation. The model underlying the test is accepted as the model of learning disabilities. Thus, the examiner might give the ITPA (Illinois Test of Psycholinguistic Abilities), assuming the test model reflects the system of how the child functions (Kirk, McCarthy, and Kirk, 1968). The analysis, in this case, would be made via the three dimensions--channels, psycholinguistic processing, and levels. Or, the examiner may make diagnostic remedial decisions by simply looking at the twelve subtests and the profile created by these scores. Remediation means building up the subskills that are tested as low on the test; a "teaching to the deficits" model of remediation.

In the case of the ITPA, a number of materials have been specifically designed around this test-related approach to remediation. For example, Bush and Giles (1969) provides exercises similar to these areas. Commercially made materials designed for remediating deficit areas of the ITPA include the MWM Program (Minskoff, Wiseman, and Minskoff, 1972) and the Goal Language Development (Karnes, 1972).

Another test-related system of remediation is the Frostig Development Test of Visual Perception and its accompanying teaching materials (Frostig et al., 1964, 1972). The diagnosis within this approach measures five areas of visual perception. The remediation consists of practice on exercises similar to the test area in which the child did poorly. Again, it is a teaching to the deficit model.

While the Detroit Tests of Learning Aptitude are not accompanied by entire remedial approaches, programs such as that by Ashlock (1973) provide teaching exercises for the DTLA. Again, remediation consists of building those skills shown to be low on the test by using exercises similar to the test itself.

Again research is lacking to substantiate the value of the test-related approach. Generally, while the child improves in the specific skill being remediated and tested, the carry over to other learning is not known (Hammill and Wiederholt, 1972).

ANALYSIS OF THE CONTENT

The following three approaches to remediation analyze the subject matter or the content to be learned, rather than the child. In these remedial approaches, the method is the same for all children, no matter what his learning style may be.

Specialized Techniques

One approach to remediation that analyzes the content can be thought of as the specialized techniques approach. Unlike the usual developmental methods or the methods and materials that are used in the regular classrooms, these approaches are touted as being highly specialized and differentiated ways to attack specific learning problems. Often these techniques have an aura of the mystique surrounding them. Sometimes the method is named after the originator of the method or the person credited with popularizing the approach, as in the case of the Gillingham, Fernald, and Fitzgerald method. In other cases the highly specialized technique is referred to in more general terms: phonics methods, VAKT method, colorcoded method, the organic approach, the neurological impress method.

The implication is that these methods are very different from methods used in regular classrooms. Often they are used when all else has failed. Frequently too, the users of the remediation procedure requires exclusive use and the abandoning of other materials and approaches, especially during the initial stages of use. Generally the teacher is required to follow certain steps, in a certain order and fashion over a specified period of time. Taken collectively, many authorities in learning disabilities suggest that knowledge and skill with these highly specialized techniques form the basis of competencies of the learning disabilities specialist.

Often upon close examination, however, we find that these highly specialized methods with great promise to cure various kinds of learning disorders are not so different from other remedial techniques that have been used to help children and are similar to developmental approaches that have been used throughout the years.

Again research is lacking to show that these methods are superior to other remedial approaches or other developmental approaches. The remedial treatment is the same for all youngsters.

Skills Development

Another way to view remediation that focuses on the content can be referred to as the "skills" approach. In this approach, a postulated hierarchy of skills in the subject areas (reading, arithmetic, spelling, etc.) is put forth. The remedial specialist attempts to determine how far the child has gone along the skills hierarchy, and where in the hierarchy the teaching should begin. It is assumed in this approach that by mastering each of the subskills of the subject the child will master the subject. For example, in analyzing a child's reading problem, the specialist might concentrate on the word analysis skills the child does not know in the sequence of word recognition skills. Essentially an understanding of normal developmental skills in each subject area is crucial in this approach to remediation. Because growth proceeds through a sequence of skills, each phase of developmental growth is likened to climbing rungs on a ladder. Each rung must be touched in climbing to the top; if the learner misses some rungs, he may fall off altogether.

This focus is in many ways similar to the approach of the field of reading. Here the emphasis is on developmental reading skills in remediation; in fact, remedial reading is viewed as little different from developmental reading. The criterion-referenced testing material (Prescriptive Reading Inventory, Croft In-Service Reading Program, Wisconsin Design of Reading Skills Development, Fountain Valley Teacher Support System, Criterion Reading) is based on such an approach to remediation. In the criterion referenced reading programs the authors put forth a sequence of reading skills. In teaching, the child is tested for each skill; and if achievement is not satisfactory, teaching is provided specifically for that skill.

The CRT (criterion referenced test approach) has been proposed as an alternative to the NRT (norm referenced test approach). In theory, CRT is used to identify an individual's status with respect to a previously established standard of performance, usually called a behavioral objective. This is in contrast to NRT, whereby an individual's performance must be identified with respect to the performance of others on the same test.

The strength of the CRT is the focus on specific subskills of behavior. The use of these tests by teachers enable teachers to pinpoint which reading skills children know and do not know. Proponants of the CRT approach believe that knowledge of children's specific skills needs will help the teacher in planning remediation because direct attention to skill needs is the surest way to increase learning.

However, the assumption that there exists an empirically derived hierarchy of reading skills is unsubstantiated according to Thompson and Dziuban (1973). They claim this assumption is faulty since no evidence is available to support this contention. Further, teachers who are using CRT systems report that children are able to pass criterion tests for a specific subskill; yet cannot transfer this skill to other reading situations.

The focus in this analysis is upon the task to be learned, rather than on the child who is to learn it.

The Materials Approach

Publishers materials themselves, become the basis of yet another category of remediation that is concerned with the content rather than the child. In this case, the materials guide can direct the procedures of remediation. The basic decision within this approach becomes the decision as to which materials to use. Once this decision is made, the materials themselves become the further decision makers. For example, if a basal reader series is selected for remediation, this material can guide the skills sequence, provide appropriate practice activities, suggest questions to be used by the instructor, and give the step-by-step instructional procedures. In many ways this is one of the easiest methods to use because it minimizes decision making. The decisions the materials make might be: after completing story four on pages 20-25, ask the following questions, give the practice skills in the teachers manual on page 34, and follow this with the think-and-do activities on pages 15 and 16 in the workbook.

The ease of using a well designed basal reader is illustrated by the fact that in spite of the severe criticism of this material by many groups (moralists, phonics proponants, linguists, literature professors, and the latest critics--the feminists), the basal reader remains the instructional tool in 90 to 95 percent of the schools in the country. The decision making for remediation is relegated to the material itself.

Yet, good remedial therapy or clinical teaching requires constant decision making, and indeed it is one of the most essential competencies of the clinical teacher. When the teacher depends upon any particular material, however, the materials themselves become the remedial procedure. They become the master rather than the servant of the clinician. Many materials are available which have become the focal point of remediation, e.g., linguistic readers, phonic material, Distar, ITA, BRL, various kinds of boxed materials, etc. The theoretical position of the authors of the material of course, provide the theoretical construct of remedial teaching. In selecting materials, therefore, not only should the underlying theory be examined, but the scope and sequence of the material as well.

Reliance upon a materials approach may lead to irrelevant instruction. Durkin (1974) warns that teachers must clarify their own role insofar as materials are concerned. By depending upon materials, she asserts that teachers become an assistant to materials.

> That is they had allowed materials to dictate what would be taught and how; all they themselves did was to help carry out the dictates. Clearly this is a serious confusion in roles, one that must be rectified for it turns a professional person into little more than an educational clerk. (p. 17)

What has research revealed about the value of the materials approach? Each material must be assessed separately, but again, there is little evidence. In the large scale HEW cooperative reading study of first grade instruction which compared materials and methods of teaching beginning reading the results showed that no one material or method turned out to be significantly superior to any other (Bond and Dykstra, 1967).

Since materials must be designed for use with many children, primary consideration is given to the task to be learned rather than the learning style of one individual child.

ENVIRONMENTAL CONDITIONS OF LEARNING

The final set of remedial approaches looks at various elements of the environment surrounding learning, rather than the child or the content.

Behavioristic Approaches to Remediation

The behavioral approach, a growing movement in remediation, analyzes the environmental conditions of learning. The approach is usually referred to as behavior modification, while a recent branch of the behavioral movement is referred to as precision teaching.

Unlike the categories discussed earlier which analyze the child, or the content to be learned, or the materials or technique to be used, this approach focuses on the conditions of learning--the environment of learning. Of greatest interest are the events subsequent to the desired behavior. Based on principles of reinforcement theory, associated with Skinner, the technique has been used in remediating children with learning problems in two ways: to eliminate undesirable behaviors and to establish specific desirable behaviors.

The behavior modification approach to remediation applies knowledge of behavior obtained through experimental psychology. Briefly, the theory states that if a response is rewarded (reinforced) when it occurs, it will tend to be repeated. Behavior modifiers are not concerned about the causes of a child's learning problems or how the child processes information, but with how the environment can be manipulated to bring about a desired behavior. The proponents of behavior modification explain that they do not search for underlying causes but that confirmation of the theory occurs when it can successfully predict and control behavior. Predictability and the ability to manipulate behavior are sufficient; there is no need to look for further underlying explanations (Poteet, 1973).

Behavior modification, thus, starts from the premise that psychological disorders represent learned behaviors and that known principles of learning can be applied to their modification. Instead of the disorders being symptomatic of some underlying disease which must be cured, the behavior therapist deals with the manifest behavior. While antecedent events might be related, it is not necessary to reconstruct the past to change behavior.

The focus is on the precise behavior desired to be changed and upon reinforcement schedules to bring about such change. Reports in the literature accompanied by convincing graphs are made by persons who are not primarily concerned with learning disabilities or cognitive processing or the nature of the content of reading, but they are concerned and skilled in the use of contingency reinforcement.

As evidence of the success of the method, behavior modifiers present a series of graphs. These graphs measure the behavior under a number of conditions, (1) baseline data (before treatment), (2) behavior using a reinforcement schedule, and (3) removal of contingency reinforcement. The graph typically shows that the desired behavior is down, up, down, up; and it suggests that the way has been found to increase the desired behavior.

While many cases are reported in the literature where the manipulation of consequence events (reinforcement) has improved children's performance, this remedial method is not without its critics. There are many educators who find the concept and goals of behavior modification limiting, confining and contrary to freedom and learning. Goodman, for example, has the following to say:

> We've got to tell the operant conditioners and the contingency reinforcers that kids can learn like pigeons but pigeons can't learn like kids and that learning theories that try to reduce learning to read to bite-size pellets that pigeons can swallow are inappropriate and theoretically wrong and ultimately harmful to at least some kids. We've got to assert that if kids learn to read with these pigeon picking programs, that's a tribute to the language learning competence of kids which makes it possible to overcome the absurdities of programs like Distar and BRL and learn to read anyway. Most children can learn in spite of such programs which fragment reading into sequences of measurable irrelevant trivia. But enough children suffer that I would like to see signs displayed all over the walls of the exhibit areas of professional conferences of groups like IRA and NCTE which say: "Caution: Instructional materials displayed here may be injurious to the mental health of your pupils." (1974, p. 823)

Behavior modification then focuses on behavior rather than on underlying causes. It does not ask why--just what reinforcement will change it.

Psychotherapeutic Remediation

The remedial method that concentrates on the feelings of the child and his relationship with the therapist is referred to here as the psychotherapeutic approach to remediation. The psychodynamics of remediation is too often forgotten in the labyrinth of materials, techniques, methods, modalities, and baseline data. These failing children are unhappy in the learning situation. Their frustrations, poor ego development, feelings of inadequacy all lead to continued failure and lack of learning. What is needed from this perspective is a reversal of this trend by building feelings for success, by establishing a healthy psychodynamic relationship between teacher and student.

Even if a child is well adjusted when he enters school, continued failure in school learning is practically certain to have unfavorable effects on his personality. As the child gets older, these feelings of failure, frustration, and oversensitivity tend to increase. Thus, in the adolescent learning disabled youngster, emotional problems are almost always in evidence. Reactions take the form of withdrawal, anxiety, conscious refusal to learn, overt hostility, negative reaction to learning, resistance to dependency, discouragement, fear that success is dangerous, distractability, absorption in a private world, and indifference (Harris, 1970). Harris (1970) reports that close to 100 percent of the reading disability cases seen at Queens College Clinic showed maladjustment problems. Similar figures have been reported by others. Many children with learning disabilities, for example, are referred for psychological and psychiatric therapy. A study of referrals of children under 18 years of age to psychiatric facilities revealed that 22 percent were referred for psychiatric evaluation because of academic difficulties (Nichol, 1974). While the remedial clinician often has youngsters with emotional problems, the psychiatrist has patients with academic disorders.

Remediation from this perspective means the task of rebuilding the child's ego, giving the confidence and assurance he lacks, letting him know that as the teacher you understand his problem and yet have confidence that he can learn and succeed.

In presenting his hierarchy of educational tasks for children with learning disorders, Hewett (1964) holds that the basic assumption underlying the hierarchy is that an effective educational program for children with learning disorders depends upon the establishment of a point of meaningful contact between the teacher and the child. Evidence, again, is lacking as to whether a psychotherapeutic approach alone is sufficient. There are many reported case histories of children who were dramatically helped by a tutor who was untrained in the sophisticated knowledge and skills of the professional learning disabilities specialist. It has been observed from this perspective that if a psychotherapeutic relationship exists, any method or material will work; if it is lacking, every method will fail.

The critics fear that overemphasis on the psychotherapeutic approach will mean a neglect of teaching. In fact, there are those cynics who suggest that the sole use of such an approach to remediation merely creates "happy failures." In discussing the limits of psychotherapeutic treatment of children with learning disabilities, McCarthy (1971) notes:

> After several decades of often fruitless effort at manipulating the child's attitude toward learning it became apparent...that tender loving care, or a deeper understanding of his own motivation, could at best produce a child who was comfortable, albeit euphoric, with his nonlearning.

The remedial clinician within this approach provides the child with psychotherapeutic help. The emphasis in this approach to remediation is the child's feeling about himself and his relationship with his teacher.

Remediation Through Pedagogy

The last category of remediation to be presented has the old fashioned title of "pedagogy." According to Cohen (1971) the major cause of reading failure is dyspedagogia, a term coined to indicate the lack of good teaching. It seems to follow, therefore, that good teaching would be a method of remediation.

A number of research studies, in fact, have pointed to the conclusion that the most important variable in a child's learning is the teacher. The Cooperative Research Program in First Grade Reading Instruction, a large scale cooperative study using 20,000 pupils and 27 individual first grade reading projects, was designed to determine the best way to teach reading. This study generated data on the following beginning to read methods and publishers programs: basal reading, basal plus phonics, i.t.a. language experience method, and phonic/linguistic approaches (Bond and Dykstra, 1967). The overall conclusion of this extensive research study was that no one method or material was so outstanding that it should be used to the exclusion of others. Moreover, the data revealed a tremendous range among classrooms within any method and pointed out the importance of elements in the learning situation over and above the method employed. The researchers concluded that to improve reading instruction, it is necessary to train better teachers of reading rather than to expect a panacea in the form of materials or methods. Furthermore, the results of the statistical analysis of the matched classrooms, both within each program and across each program, indicated that the difference between one's classroom achievement and others using the same program was greater than classroom achievement across programs. That is, children in certain classes did better than children in others, regardless of the methods or materials used, even when data was controlled for intelligence and socio-economic class. The evidence suggested that the most important component in the situation that made for successful readers was not the materials or methods but the teacher. Similar conclusions were reached in studies of reading by Chall and Feldman (1966), by Harris et al. (1968) and in the CRAFT project, and by Tannenbaum and Cohen (1967).

What some writers suggest from this perspective of remediation is that the term learning disability be replaced by teaching disability to emphasize the shift in focus from something deviant or pathological within the child to the inadequate arrangement of environment as a teacher of that child. Further, Bateman (1974) considers whether labels such as learning disabilities or minimal brain dysfunction result in a sophisticated excuse for poor teaching or even non-teaching?

While there is ready agreement that the teacher and his style of teaching is a crucial component, there is not such accord as to what the essential ingredients of the teacher are. Is the essential teacher attribute empathy, kindness, ability to structure the class, creativity, enthusiasm, neatness, order, ability to individualize, punctuality, consistency, knowledge of the field, love of children, diagnostic skills, familiarity with materials, or some other characteristic? Until we get a clearer answer as to what qualities we are looking for, the plea for "good teaching" may be nebulous.

A SYSTEMS APPROACH TO REMEDIATION

A model of remediation consisting of three types of analysis and nine different categories of remediation has been presented. Perhaps they are not as separate as presented here. That is, a teacher's instructional procedures may fit into two or more categories and he may shift from one to another as conditions demand. In some instances the categories appear to be compatible; in others they are diametrically opposed in theory, assumption, and procedure. The purpose of the analysis was to sort out and classify the remedial approaches that are advised and that are used.

The research that has been conducted to substantiate the efficacy of one specific remedial approach has not resulted in findings that are significant or clearly supportive of any specific category of remediation. Each remedial category has merit, yet none has strong supportive evidence via research. Each has valid arguments, yet each is vulnerable to criticism.

Such evidence does, however, suggest the folly of overdependence upon only one approach. No one category of remediation can be relied upon as the way to provide remediation. After a five year follow-up study of children with learning disabilities who were enrolled in special education classes, Koppitz, (1973) concluded:

> ... learning disabilities cannot be corrected or "cured" by any specific teaching method or training technique. It is imperative that teachers have a wide range of instructional materials and techniques at their disposal and that they are imaginative and flexible enough to adapt these to the specific needs of their pupils.(p. 173)

Similarly, Minskoff (1973) perceives the learning disabled child as constituting one of the most heterogenous populations of children and therefore the learning disabilities teacher must be able to construct and utilize a great variety of teaching methods, materials, approaches, etc.

Perhaps thinking of remediation in terms of each category alone is simplistic; what we need is a model of remediation--one that would take into account the interacting effects of each of the categories of remediation. Each remedial approach has a contribution to make to the total system of clinical teaching. Classification is only the initial step; the development of a systems approach to remedial teaching should be the next task.

The purpose of this paper is to suggest a taxonomy of remediation. By sorting the various categories and meanings of remediation, the diverse interpretations can be classified. The learning disabilities specialist must have a certain degree of knowledge, skill, and expertise in each. Finally, we must work toward the development of a systems approach to remediation that takes into consideration the interrelationship of the various categories of remediation.

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LANGUAGE AND SPEECH DIFFICULTIES OF THE ADOLESCENT LEARNING DISABLED

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This paper will present an interpretive review of the speech, language, and characteristics of the adolescent learning disabled. It should be noted at the outset that an intensive review of the literature in psychology and education revealed a paucity of research pertaining to the language and speech problems of the adolescent learning disabled. This paper will focus on the following areas of language and the learning disabled adolescent: (1) definitions of language, language disabilities, and the learning disabled, (2) assessment of language and speech, (3) language and speech characteristics of the adolescent learning disabled, (4) intervention strategies, and (5) implications for further research and programming. The present authors' own conceptualizations of the topics will be presented.

Definitions of Language

It is important to define the construct of language before attempting to assess various aspects of approaches dealing with the language problems of the adolescent learning disabled. Language has been defined in a multitude of ways by various investigators with varying degrees of precision. These definitions, in part, are dependent upon the various investigators' disciplines. For instance, from a linguistic point of view language has been defined by Carroll (1953) as,

> a structured system of arbitrary vocal sounds which is used, or can be used, in interpersonal communication by an aggregation of human beings, and which rather exhaustively catalogs the things, events, and processes in the human environment. (p. 10)

In this instance, Carroll sees language as an internalized system or code that the individual has acquired and is able to use in his or her speech communication. This emphasis on coding is operative in other linguistic definitions, e.g., Ervin-Tripp (1966). Speech on the other hand, is the behavioral manifestation of language, i.e. communication or overt verbal performance.

From a psycholinguistic, transformational-generative point of view, Chomsky (1957, 1965) views language as an abstract system of knowledge whereby sound and meaning are associated grammatically in a specific and complex manner. According to Chomsky and his associates (e.g., McNeill, 1970, Slobin, 1971), when a child acquires a language he or she essentially acquires an elaborate system of syntactic, semantic, and phonological rules. These rules may be considered to represent the basic competence or abstract linguistic knowledge that underlies the generative nature of the child's performance. A great deal of the current research and theorizing in children's language comprehension and production is dependent on recent work in psycholinguistics. For a comprehensive review of the literature, the reader is referred to reviews by Fillenbaum, 1971, McNeill, 1966, 1970, Menyuk, 1971, Olson, 1970, and Slobin, 1971, 1972. Finally, from an applied linguistic point of view, language is a social tool or means of communication used by people to carry on the affairs of society (Dever, in preparation).

In contrast, from a learning theorist's point of view, Skinner (1957) and Staats and Staats, (1968) discuss language and language acquisition through the application of S-R operant conditioning principles. According to Skinner, specific verbal or linguistic behaviors are acquired or learned through a combination of operant conditioning and response generalization. Similarly, Staats and Staats (1968) employ such behavioristic principles as association-formation, stimulus, and response generalization in their account of language acquisition. Hence language, in this view, is actually a form of operant behavior which requires contiguous immediate reinforcement for its maintenance. However, notions of simple learning models such as Skinner's and mediated learning models (Mowrer, 1954 and Osgood, 1957) have been shown to be deficient in their attempt to account for language acquisition (Chomsky, 1959, 1968, Fodor, 1966, McNeill, 1966, 1970). Wardhaugh (1972) provides an excellent review and comparison of linguistically oriented and learning oriented theories of language acquisition.

On the other hand, it is important to stress the distinction between speech and language. For instance, Carroll (1967) stated that when we are referring to speech, ". . . we are, or should be referring, to the actual behavior of these individuals in using language, the amount of talking, the conditions under which talking is elicited, and so forth" (p. 43). Hence speech is the behavioral manifestation of language, i.e., communication or overt performance.

When discussing the general problem of language disabilities, Marge (1972) makes the distinction between each of the four main components of language behavior, i.e., listening, speaking, reading, and writing. He, like others, emphasizes that language is made up of phonological, morphological, syntactic, and semantic components which must be acquired to understand and speak a given language. Various approaches reflecting each of these components of language and language behavior can be found in studies dealing with the language and speech difficulties of learning disabled children and adolescents.

Definitional Problems in Learning Disabilities

Identification, assessment, and programming for the learning disabled has been, and continues to be, a subject of tremendous complexity, diversity, and ambiguity. In part, this is a direct result of professional influence. Despite the effort that has been expended during the last few years to clarify what constitutes a learning disabled child, a considerable discrepancy of opinion exists within the professional cadre. Confusion has been exacerbated by the entry of many disciplines into the field, e.g., medicine, speech and hearing, special education, optometry, and reading specialists. Communication among these disciplines has been hindered by the plethora of terms used to describe the learning problems of the child they assess. For example, Cruickshank in 1968 reported that he had found 43 terms in the literature to describe children exhibiting similar characteristics (McDonald, 1968).

Definitional problems. Formulation of a definition and appropriate terminology has been a long and arduous process. Presently, a widely accepted definition for specific learning disabilities is one formulated by the National Advisory Committee on Handicapped Children (USPHS, 1969). This definition was incorporated into the Children with Specific Learning Disabilities Act of 1969, PL 91-230, the Elementary and Secondary Educational Amendments of 1969,

> Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage.

While educators may have "breathed a sigh of relief" that such an extensive definition had been formulated, concern has arisen over many aspects of the definition. For example, one salient feature of the definition is that it clearly enumerates what a learning disabled child is not (Lerner, 1971, Myers and Hammill, 1969, Gearheart, 1973). Excluded are children who have apparent learning problems primarily caused by sensory deficits, motor difficulties, mental retardation, emotional disturbance, or environmental disadvantage. This exclusion of many exceptional children from the umbrella of specific learning disabilities may be administratively advantageous, but it also may tend to dictate unnecessary differences in programming, especially when procedures are incorporated into mandates for state legislation. The process of exclusion necessitates a new category of exceptionality with the implicit assumption that programming must be significantly different from instruction received by other children, normal or exceptional.

Moreover, the PL 91-230 definition is not an operational one. According to Wiederholt (1974), professionals, parents, and legislators have been seeking an operational definition that would clearly identify learning disabled children via the utilization of standardized tests and cutoff criterion scores. Wiederholt believes that because of the lack of valid, reliable instruments and identification procedures, the field is no closer to such a definition than it was over a decade ago when Kirk (1963) introduced the learning disabled population in general terms. In summarizing the problems of defining learning disabilities, Wiederholt states,

> It is unlikely that this problem of definition will be solved in near future. In the meantime, however, the term "learning disabilities" will probably continue to mean a different variety of dysfunctions to different people, with accompanying incidence figures ranging anywhere from less than 1% to over 20% of the school-age population. Schools will also probably continue to include in this category children who are variously underachievers, emotional- or conduct-disordered, or dull-normal pupils who are failing in school--none of whom clearly fit under another classification system in special education, e.g., mentally retarded, deaf, blind. (p. 44)

Use of an etiological framework. Although the PL 91-230 definition does not explicitly state causation of the learning disability, that implicit assumption exists with the inclusion of the terms "brain injury" and "minimal brain dysfunction."

According to Bryan (1974), the adoption of the medical terminology in the field of learning disabilities may be an attempt by specialists to establish a "technology, jargon, institutional support, and fee structure" (p. 305) that differentiates the "field" from other areas, e.g., emotional disturbance. For whatever reason the field has elected such a framework, the result is a close binding of the etiology and behavior of the learning disabled child. General medical terminology such as "minimal brain dysfunction" has been identified as relating to general behavioral terminology such as "language deficiency," "hyperactivity," or "short attention span." These descriptions, which are typically lacking in specificity, are further utilized in circular, non-productive logic. For example, the term "minimal brain dysfunction" is utilized by the diagnostician to "explain" the characteristics, e.g., hyperactivity, that prompted the referral. Therefore, minimal brain dysfunction accounts for the characteristics (the source of referral) and, conversely, the characteristics are taken as evidence that minimal brain dysfunction is present. The product of this activity may be certification that a learning disability is apparent, but nothing as yet has been accomplished to assist in furthering the child's educational prospect.

A medical etiology is a disease model which assumes that the "pathology of disease" resides within the individual (Sagor, 1972, Mercer, 1973, Bartel and Guskin, 1971). Special education has come to rely quite heavily on such a medical orientation, thereby, emphasizing etiological disease, diagnosis, and prescriptive treatment. Psychological phenomena, behaviors for example, are viewed in this orientation as mechanical reactions to underlying pathology. A partial outcome of this framework is the generation of categories reflecting diagnosis of suspected etiology. Often the implicit assumption is that the problem is diffuse and therefore is labeled organic in nature (e.g., brain damage), and behavioral manifestations become collapsed into successively smaller non-observable categories, e.g., immaturity. As a result, organic pathology, not behavior, becomes the acceptable descriptor of children, and the thrust of intervention is one of organic classifications (i.e., special classes for learning disabled children) rather than an alteration between the child and his or her environment.

Educators, psychologists, and other non-medical professionals of recent years could be considered largely responsible for the emphasis of physiological factors in learning disabilities. The writings of Cruickshank (1966), Freidus (1964), Frostig (1962, 1963), Goldstein (1942), Kephart (1971), Strauss and Lehtinen (1947), and many others have alluded to the necessity of diagnosis in determining etiology to account for observable behavior patterns. Unfortunately, such diagnosis for etiology has remained prerequisite to the introduction of any educational input; moreover, such diagnosis is not often worthless for attaining educational objectives (Black, 1967, Hammill, 1971, Hartledge and Green, 1971, Keough, 1971). How to teach the child or to determine the methodology is not necessarily answered by determining the etiology (Cohen, 1974). In addition, the adequacy of determining etiology, especially brain damage, has not been demonstrated (Reed, Rabe, and Mankinen, 1971). Instruments (e.g., the EEG) and procedures for detecting soft signs, have not been found to be reliable (Freeman, 1971, Hartledge and Green, 1973).

Because of the multiplicity of interpretations of learning disabilities and the lack of valid, reliable measures in order to identify those children and youth who may possess learning disabilities, any conclusions concerning the nature of the language of "learning disabled" adolescents should be viewed with caution. On such matters, Wepman, et al., (1975) states,

> The lack of a clear definition of this category of handicap has not only created problems in the control of special education funds; it has also vitiated much unfocused education, psychological, and medical research. The inconsistent results obtained in much of this research are a consequence of the great heterogeneity of this population and the fact that research samples drawn from an ill defined population can be expected to differ widely merely by chance. (p. 103)

Social-Cultural Environment Factors in Language and Learning Disabilities

The present review does not consider the extensive literature dealing with cultural deprivation and the relationships of social-cultural, environmental factors to language performance and language and learning disabilities. Social-cultural, environmental factors, and cultural deprivation are usually not considered in most current definitions of learning disabilities although language deficits and/or differences may be concomitants of socio-cultural variables. Moreover, a large proportion of children and adolescents who fall within the rubric of "disadvantaged," manifest behaviors (e.g., hyperactivity, perceptual-motor problems) subsumed under the definitions of learning disabilities (Herrick, 1973, Mackie, 1968, Myers and Hammill, 1969, Redelheim, 1973). Furthermore, it should be noted that it is particularly in language-related areas (e.g., reading and writing) that both retarded and non-retarded disadvantaged children and adolescents are most restricted in their academic learning when compared with more advantaged non-retarded peers. Evidence also exists which suggests that functional mental retardation may be closely related to linguistic "conflicts" between speakers (e.g., teachers, clinicians, examiners, etc.) of standard English, and auditors, whose language is nonstandard English (Adler, 1972, Bryen, 1974, Labov, 1972, Williams, 1970).

The literature is replete with articles by investigators having hypothesized or investigated language deficits and/or differences of culturally disadvantaged and minority group status children and adolescents (cf. Anastasiow, 1972, Baratz, 1970, 1973, Bartel and Axelrod, 1973, Bereiter and Engelmann, 1966, Bernstein, 1967, 1970, Cazden, 1966, Deutsch, et al., 1967, Dever, 1972, Ervin-Tripp, 1972, Gottesman, 1972, Hess and Shipmen, 1965, Jensen, 1968, Labov, 1967, 1970, Levy 1972, Rohwer, 1971, Vernon and Mitchell, 1974, Williams and Wood, 1970).

Additional empirical research is needed that will provide more specific and direct evidence relating socio-cultural environmental factors to the child's and adolescent's intellectual and linguistic growth and performance. Social, cultural, and ethnic factors may assist in the description of language habits among groups of children, but they are not necessarily the determinants of language deficit. We know very little concerning the effects of specific socio-cultural environmental variables on individual language development and particular language processes. The question arising from much of the research on language problems of disadvantaged children and adolescents is whether differences observed in their language performance (e.g., dialect differences from standard to white middle class English) have been mistaken for, or attributed to language deficiencies (i.e., competence) (Sitko and Semmel, 1973). Further discussions and investigations of the language and language-related academic problems of disadvantaged and minority children and adolescents, and of various deficit-difference positions may be found in the following sources: Allen, 1970, Anastasiow, 1971, Baratz and Baratz, 1970, Baratz and Shuy, 1969, Bartel, Grill, and Bartel, 1973, Bryen, 1974, Carter, 1970, Cazden, 1970, Cole and Bruner, 1971, Dale, 1972, Deutsch, Katz, and Jensen, 1968, Gonzalez, 1974, Hall and Turner, 1974, Houston, 1970, Horn, 1970, Jensen, 1974, Labov, 1970, Meissner, 1975, Passow, Goldberg, and Tannenbaum, 1967, Ramstad and Potter, 1974, Valletutti, 1971, Williams, 1970).

Language and Learning Disabilities

Paramount in the PL 91-230 definition of learning disabilities are language disorders. Many of the terms used in the PL 91-230 definition have the fields of speech or language as their basis, (e.g., developmental aphasia). Language disorders have been proferred as symptoms of a learning disability as well as the cause. Those investigators who have been interested in language and learning disorders have played a major role in shaping the field of learning disabilities. Although early specialists in the field, e.g., Strauss and Lehtinen (1947) and Strauss and Kephart (1954) concentrated most of their efforts on perception and behavioral characteristics, they alluded to the language disorders of "brain-injured children."

Goldstein (1942) who worked with brain-injured World War I soldiers, significantly influenced Strauss and Werner's investigations with brain-injured retarded children. Goldstein wrote of the wounded soldier's loss of the use of abstract language, motor or sensor aphasia, and of reading and writing difficulties. In the same vein, Strauss and Kephart (1954) included in their book, Psychopathology and education of the brain injured child Vol. II, a chapter entitled "Psychopathology of Language." They described language as a process very much dependent upon perception and outlined Piaget's theories of language development (Piaget, 1948).

Strauss and Kephart characterized the language of brain-injured children as being animistic or egocentric in nature for longer periods of time than normal children. In describing this phenomena they stated,

> It is not necessary, however, to assume that the brain injured child is more "animistic" in his thinking than the non-brain injured but only to assume as in fact we know, that his percepts are less well formed, that he is revealing this fact in his language and that he uses this type of language for a longer time than the non-brain injured child. (p. 102)

Another clinician who has sometimes been called the "father of dyslexia" in the United States, Samuel T. Orton, also wrote about the language difficulties of the dyslexic child. Orton (1937) posited that delays and deficits in language function may be due to a deviation of the processes of establishing unilateral brain superiority in individual areas. He cites developmental language disorders in children that appeared to be similar physiologically to the disturbances in language of adults who have lesions in critical cortices controlling language. He termed these disturbances word deafness (inability to understand the spoken word), developmental motor aphasia, developmental agraphia (writing problems), and developmental alexia (reading problems).

A significant figure in the investigation of language difficulties of learning disabled children is Helmer Myklebust. Initially an investigator of deafness and aphasia, his prime interest in learning disabilities has been the language of the learning disabled. He, as did Orton (1937), feels that learning disabilities are "neurogenic" in origin (Myklebust, 1954, Johnson and Myklebust, 1967). In his diagnosis and programming for children with learning disabilities, he considers the intraneurosensory, interneurosensory, and integrative learning disabilities of the child. Neurological bases of learning are explained by Myklebust via the brain's receiving, categorizing, storing, and integrating information. Myklebust (1954) classifies language function according to inner language (thinking and verbal imagery), receptive language (hearing and reading), and expressive language (speaking and writing). He and Johnson present disorders in all functions of language and suggest instructional strategies for dealing with each.

One of the most well known, and respected contributors to the field of learning disabilities and language disorders is Samuel A. Kirk. Because of his recognition of inter and intra individual differences of exceptional children, and the need for standardized instruments that could detect these differences, Kirk and his associates developed a standardized language test which would possibly provide more instructionally relevant information to the diagnostician and the classroom teacher. This test, the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, McCarthy, and Kirk, 1961, 1968) has been extensively field-tested and revised and is currently widely used in the diagnosis of learning disabled children. The theoretical basis for the ITPA stems, in part, from the Osgood Model of the Communication Process (Osgood, 1953, 1957). Although Osgood has modified his model in the direction of transformational theory (Osgood, 1968), he originally was extending mediational S-R theory to linguistic behavior. For a detailed description of the development and standardization of the revised version of the test, the reader is referred to Paraskevopoulos and Kirk (1969) and Kirk and Kirk (1971). Since the introduction of the ITPA, many investigations of various aspects of the test have been conducted. The general results of these studies are discussed in the selections under assessment and intervention in this paper.

Joseph M. Wepman, whose research and clinical experience originated with adult aphasics, has influenced the field of learning disabilities in the areas of theoretical constructs of language, assessment, and programming. Wepman, et al. (1960) posited three levels of language functions: the reflexive, the perceptual, and the conceptual. Processes of language function are transmission and integration with transmission being divided into encoding and decoding modes. The theoretical construct, memory bank, was considered an important component to perceptual and conceptual language. Feedback, both external and internal, was included in the language model. The processes of encoding and decoding in this view, are modality bound and integration of these processes are very important for language comprehension.

In the area of assessment, Wepman (1958) devised a test of auditory discrimination which was designed to measure differences between phonemes. This widely used test was constructed to measure speech sound discriminations among children between the ages of five and eight. Another test, the Language Modalities Test for Aphasia, (Wepman and Jones, 1961) was developed to assess modalities. Wepman has contributed to the programming of learning disabled children by stressing teaching toward the strong modality of the child. He stressed that major differences occur in the perceptual level of learning and that these differences affect the child's learning in reading and other skill areas. He suggests teaching through a child's single strong modality rather than combined modalities. The weaker modalities should be trained separately.

In summary, these clinicians and investigators of language have strongly influenced both the fields of language pathology and learning disabilities, especially in the development of assessment and instructional techniques for learning disabled children and adolescents. Unfortunately, models of language processing presented by these theorists for the most part, do not adequately reflect current language research in the fields of linguistics, psycholinguistics, and cognitive psychology.

Assessment of Language Disabilities

A crucial step in developing instructional strategies for the adolescent learning disabled in that area of language is accurate and valid assessment. It is our belief that precise assessment in terms of developmental levels of language is a necessary component prior to the development of language intervention strategies.

Language assessment for the learning disabled and mildly retarded is still in a rather primitive state. In an intensive review of the language literature dealing with retarded children, Sitko and Semmel (1973) found that effective assessment of language competence and performance of retarded and disadvantaged children was lacking. Rosenberg (1970) particularly emphasized the need for language assessment devices with normal and handicapped children that are based on recent, valid, theoretical, and methodological research developments in the language sciences. He felt that developers of language tests did not take into account everything that was presently known about language and language development.

For example, Rosenberg severely criticized the ITPA, which is probably the most widely used general standardized language test, with retarded and learning disabled children, for its lack of incorporation of recent work in developmental psycholinguistics. Critical evaluations of the ITPA have indicated severe weaknesses in its rationale, validity, and reliability (Cazden, 1971, Dever, 1971, Hammill and Larsen, 1974, Mehrabian, 1970, Sedlack and Weener, 1973, Seversen and Guest, 1970, Van Hattum, 1969, Weener, Barritt, and Semmel, 1967, Ysseldyke and Salvia, 1974). McCarthy (1975) has criticized the use of the ITPA which was normed on children ages three through ten as an assessment tool and research measure of language difficulties with adolescents.

Irwin, Moore, and Ramps (1972) emphasized that, at the present time, evaluation of language disorders is both limited and spotty in nature. Specifically, they reported that a direct measure of deep structure (in transformational terms) is beyond our clinical ability and certain language measures and now more precise than others. Dever (1971) has argued that present methods of testing language development in children and adolescents do little in the way of providing a methodology for the clinician, special class, or resource teacher.

Moreover, evaluation of language difficulties of the adolescent is further complicated by the fact that adequate assessment of language development (e.g., Lee, 1974) stops at too low a point in the sequence of development to be of much use in the classroom, particularly in the secondary grades (Dever, in preparation). Relatively few language assessment instruments are available for measuring and classifying the dramatic changes that occur in children after the age of five years in the areas of syntax, semantics, and phonological skills. Unfortunately, most of the more promising linguistic measures which are now appearing have been developed for assessment of language in young children (Sitko and Semmel, 1973). Some of the more promising language sampling and assessment techniques which have been developed for analyzing a child's language behavior may be found in the following sources: Baratz, 1969, Cazden, 1971, Foster, Giddan, and Stark, 1972, Lee, 1974, Lee and Canter, 1971, Marge, 1972, Severson and Guest, 1970, Tyack, 1973, and Tyack and Gottsleben, 1974.

Typically there have been many tests other than the ITPA based on the assessment of language disorders in the learning disabled. The reader is referred to Berry, 1969, Cawley, et al., 1972, Gillespie and Johnson, 1974, Hammill and Bartel, 1975, Irwin, et al., 1972, Mauser and Dembinski, 1974, Myers and Hammill, 1969, for an overview and critique of tests currently being utilized. These also have been criticized on several grounds. For instance, the Peabody Picture Vocabulary Test (PPVT) was criticized by Irwin, et al., (1972) for its use with populations other than those included in the standardization sample. Moreover, the use of the PPVT as a single diagnostic measure of language by clinicians is extending the scope of the instrument which attempts to measure only the child's receptive vocabulary (Van Hattum, 1969).

In essence, language measures used for diagnosis and subsequent placement and treatment for both learning disabled children and adolescents have been shown to be deficient in certain psychometric aspects, including reliability, validity, and utility. In particular, reliable, valid, and educationally relevant measures of adolescents' language competencies do not exist. Presently there exists a very limited range of language instruments, many based on doctrinaire inadequately researched theories of language abilities. From a socio-cultural point of view, various standardized language assessment instruments currently in existence are considered to be linguistically and culturally biased and do not reflect the linguistic structure of non-standard English. Adequate language sampling assessment devices appropriate for adolescents should differentiate between underlying phonological, syntactic, and semantic competence and observable linguistic performance. In addition, they should take into account dialect and cultural idiosyncracies. If we wish to develop effective remedial and/or developmental language training programs, we must first be able to assess accurately the nature of the child or adolescent's language problem. Unfortunately in learning disabilities, we have become too normative and product oriented rather than criterion and process oriented in our approach to language assessment of children and adolescents.

Language Characteristics of Adolescent Learning Disabled

In reviewing the research concerning the language and speech characteristics of the adolescent learning disabled, the present authors were faced with several critical issues. First, as stated previously, a precise operational definition of learning disabilities has not been established. Criteria for the selection of children included in descriptive studies dealing with language vary greatly. This finding was not surprising since many investigators have cited the extreme heterogeneity of characteristics among children and youth labeled learning disabled (Adelman, 1971, Bortner and Birch, 1969, O'Grady, 1974, Orlando, 1973, Wepman, et al., 1975). Furthermore, in determining the characteristics of the learning disabled, investigators have differed widely in their orientation and definitions of language and language behavior. In addition, many of the language characteristics ascribed to learning disabled children have as their source clinical observations rather than empirically based evidence.

In our review of the research concerning speech and language difficulties of the adolescent learning disabled, the present authors were confronted with a dearth of studies dealing with the adolescent learning disabled. We rapidly found ourselves agreeing with Kline's (1972) statement that "adolescents with learning disabilities are grossly misunderstood and even more grossly neglected" (p. 266). Furthermore, there appears to be many gaps (and methodological weaknesses) in the research concerning the language difficulties of the children designated learning disabled which make it practically impossible to generalize findings based on child learning disabled samples to the learning disabled adolescent population. While language disabilities are cited often as major contributors to the failure of learning disabled children, there is a paucity of research "on precisely how children with learning disabilities handle specific language related tasks" (Bartel, Grill, and Bartel, 1973, p. 518).

Because of the lack of investigation dealing with the adolescents, the present authors will briefly review the nature of the studies reported on children as well as youth who have been categorized as possessing learning disabilities. For the purpose of this paper, we have categorized this research into speech characteristics, general language, and information processing studies. Research relating to reading problems and reading as a language processing activity is presented in our other conference paper (Gillespie & Sitko, 1975).

Speech Disorders and Learning Disabilities

Speech difficulties have been included among the characteristics of the "learning disabled," "dyslexia," "minimally brain damaged," etc., (Bannatyne, 1971, Bakwin, 1965, Clements, 1966, Hallgren, 1950, Ingram, 1960, Jansky, 1969, Johnson, 1973, Johnson and Myklebust, 1967, Lenneberg, 1967, Myers and Hammill, 1969, Orton, 1937, Rabinovitch, 1962, Wiig, Semel, and Crouse, 1973, Wyatt, 1969).

Immature speech patterns, mild speech irregularities, problems of articulation, and general intelligibility cluttering (which is described as a rapid, jerky, stumbling speech with marked omissions and substitutions to a degree which approaches jargonic speech (Harris, 1970), have been attributed to some children and adolescents who have been labeled learning disabled. Johnson (1973) describes a portion of children with psychoneurological learning disorders as having difficulties with the motor patterns for speaking which is characterized as dyspraxia, evidenced by poor lip and tongue motility, although there is no evidence of paralysis or structural problems. According to Johnson and Myklebust (1967) the apraxic has the adequate lip and tongue movements but does not "know how or where to place his tongue..." (p. 24). They also described apraxic speech disorders among adolescents and necessary intervention strategies for correcting the difficulties. Myers and Hammill (1969) note that in their clinical experiences with children and learning disabilities, many of these children "show evidence of poor lip and tongue motility and coordination," (p. 46).

De Hirsch (1963) described adolescent learning disabled who possess speech irregularities, cluttering, and minor articulation inaccuracies, as a part of their total language disability. Jansky (1969) wrote of a severe dyslexic adolescent who had been originally referred for speech evaluation at the age of six, and who still possessed poor motor speech patterns. She also described the boy's family as individuals who possessed hesitations, disorganizations, blocking, and stuttering into their adolescent and adult life. Both de Hirsch (1963) and Jansky (1969) portrayed these adolescents as "plastic" which Bender (1953) described as the inability to stabilize various types of configurations.

In essence, most of the speech difficulties observed in learning disabled adolescents have been clinical and descriptive in nature. Although mild speech irregularities among adolescent learning disabled have been described by a few investigators, the incidence and nature of speech problems have been virtually neglected.

General Language Difficulties

As stated previously, there are a multiplicity of definitions and interpretations of the language process. Studies dealing with the language of populations labeled learning disabled reflected a wide variety of interpretations and assessments of language. The authors chose the following categories which appear to reflect the language research found in the literature. These studies seem to fall in the following general classification of language: oral language which includes reception, integration, and production; written expression and information processing.

Oral language. Numerous investigators, theorists, and clinicians have provided evidence of difficulties in the receptive, integrative, and expressive aspects of oral language of learning disabled children and adolescents, e.g., Johnson and Myklebust, 1967, Marge, 1972, McCarthy and McCarthy, 1969, Myers and Hammill, 1969, O'Grady, 1974, Rosenthal, 1970, Semel and Wiig, 1975a, Semel and Wiig, 1975b, Vogel, 1974, Wiig and Semel, 1975, Wiig, Semel, and Crouse, 1973.

In a summary of the review of the literature concerning oral syntax of "dyslexic" children, Vogel (1974) concluded that deficiencies or immaturities in oral syntax have been attributed to learning disabled children, (e.g., Doehring, 1968, Ingram, 1960a, Johnson and Myklebust, 1965, Rabinovitch, 1959). In her study, Vogel (1974) found that seven and eight-year-old dyslexic boys were deficient on 7 of 9 measures that were used as indicators of syntax and morphology: recognition of melody pattern, sentence recognition, morphology of nonsense words, morphology for real words, grammatic closure, oral closure procedures, and syntax complexity. There were no significant differences on Recognition of Grammaticality and the Northwestern Syntax Screening Test. Seven of the nine measures utilized in the study were experimental in nature rather than standardized. Vogel concluded that the findings may help identify high risk children prior to entering school.

Similar findings concerning language production of learning disabilities children and adolescents were indicated by Wiig, et al., (1973), Wiig and Semel (1975). As a result of their comprehensive studies and detailed reviews, Wiig and Semel, 1972, 1973, 1974, 1975, and Wiig et al., 1973 conclude that learning disabled as compared to normal children possess deficiencies in receptive vocabulary, delays in the acquisition of rules of morphology, name and word finding difficulties, reductions in verbal fluency, quantifiable reductions in the ability to use morphological rules, and difficulties in the comprehension of linguistic concepts requiring logical operations.

In a recent comprehensive paper, Semel and Wiig (1975a) summarized findings from a series of studies which investigated the following auditory language processing abilities of learning disabled children and adolescents: (1) comprehension of critical word sequences and syntactic structures, (2) knowledge and comprehension of English morphology, (3) comprehension of linguistic concepts requiring logical operations, and (4) immediate recall of semantically and syntactically varied sentences (Semel and Wiig, 1975b, Menyuk and Looney, 1972, Wiig, Semel, and Crouse, 1973, Wiig and Semel, 1973, 1974, Piaget and Inhelder, 1969, Goodglass and Kaplan, 1972, Mecham et al., 1966, Wiig and Roach, 1974, Kolers, 1972).

The combined results from these studies were as follows:

1. Learning disabled children exhibited quantitative reductions in the acquisition and comprehension of syntax (Semel and Wiig, 1975b, Menyuk and Looney, 1972). This finding supported other related research indicating that a large proportion of learning disabled children exhibit significant reductions in receptive and expressive syntactic abilities (McGrady and Olson, 1970, Rosenthal, 1970, Wiig et al., 1973, Wiig and Semel, 1974). Moreover, learning disabled children in the Semel and Wiig, 1975b study exhibited quantitative reductions in the ability to process and synthesize critical verbal elements. Delays in the acquisition of syntactic rules were not significantly reduced with age (i.e., between 7 and 11 years). Error patterns were most discriminating on sentences considered to be of higher grammatical complexity, such as question sentences, sentences with demonstratives and "wh" forms, possessive relationships, and relationships with direct and indirect objects.

2. Learning disabled children exhibited quantitative delays in the acquisition of morphology when compared with achieving age peers (Wiig, Semel, and Crouse, 1973). In particular, learning disabled children revealed the greatest relative differences for third person singular, possessives, and adjectival inflections.

3. Learning disabled children exhibited significant deficits in the comprehension of linguistic concepts in which logical relationships were expressed between two or more verbal elements. In particular, they demonstrated most errors in comprehending familial relationships, followed in decreasing order of difficulty by spatial relationships, temporal relationships between sequential events, passive relationships and comparative relationships (Wiig and Semel, 1973). Moreover, comprehension of familial relationships by learning disabled children tended to be at "sensorimotor" or "preoperational" levels (Inhelder and Piaget, 1964, Piaget and Inhelder, 1969).

4. Comprehension deficits for linguistic concepts expressing comparative, passive, spatial, temporal, and familial relationships persisted in learning disabled adolescents (Wiig and Semel, 1974).

5. Both learning disabled children and adolescents reflect impairments of abstraction, generalization, simultaneous analysis and synthesis, and delays in logical growth (Semel and Wiig, 1975b, Inhelder and Piaget, 1964, Luria, 1966, Mecham et al., 1966, Piaget and Inhelder, 1969).

6. Significant variables in sentence recall by learning disabled children were sentence length and structure (Menyuk and Looney, 1972).

7. Significant variables in sentence recall by learning disabled adolescents were semantic consistency and syntactic complexity (Wiig and Roach, 1974). According to Semel and Wiig, 1975a, the data on sentence recall suggest short term memory limitations in learning disabled adolescents. The data further implied that deep structure and semantic interpretations (represented in long term memory) facilitate auditory processing and recall. The authors concluded that several areas of research of auditory language process deficits associated with learning disabilities, remain to be investigated further, particularly those areas which related to the comprehension of prepositions and prepositional phrases, negations, adjectives, and modifier-strings.

In the area of language production deficits in learning disabled adolescents, Wiig and Semel, (1975) recently reported that there was a scarcity of investigations which explored the nature and extent of productive language deficits associated with learning disabilities. On the other hand, learning disabled children had been reported to exhibit oral language problems, characterized by deficits in oral syntax, name and word finding difficulties, and reductions in "verbal fluence" (Bannatyne, 1971, Johnson and Myklebust, 1967, Kass, 1962, Lerner, 1971, Orton, 1937, Rabinovitch, 1959, Vogel, 1974).

In their study of language production of 32 adolescent learning disabled, ages 12-16 years, Wiig and Semel (1975) administered an experimental test battery containing the following subtests: (1) Verbal Opposites (Detroit Test of Learning Aptitudes), (2) Visual Confrontation Naming (Boston VA Test), (3) An adaptation of the Fluency of Controlled Association subtest (Boston VA Test), and (4) Producing Sentences (Minnesota Test for Differential Diagnosis of Aphasia). In addition, speech characteristics in conversation were rated using the Rating Scale Profile of the Boston VA Test (Goodglass and Kaplan, 1972). Comparisons of the performances on the subtests administered indicated that the academically achieving adolescents performed significantly better than the learning disabled adolescents on all but two subtests, i.e., Sentence Production and Fluency of Controlled Association.

Comparison of ratings of the speech characteristics revealed that the learning disabled adolescents scored close to normal on characteristics other than phrase length and grammatical form. On the Verbal Opposites subtest, which required accurate naming of antonyms in response to stimulus words, learning disabled adolescents showed a significant reduction in the ability to retrieve accurate verbal opposites, as well as a reduced speed of retrieval of verbal opposites. On the Confrontation Naming subtest which required retrieval of verbal labels in response to pictorial presentations of objects, letters, geometric forms, actions, numbers, and colors, learning disabled adolescents exhibited significant reductions in the accuracy and speed with which they labeled the pictorial presentations. Wiig and Semel (1975) further reported that similar deficits have been found in the accuracy and speed with which younger dyslexic children named pictured objects (Denckla, 1974). On the Controlled Association subtests which required retrieval and naming of category class members, differences between the two groups appeared to result from reduced semantic categorization by the learning disabled adolescents. The findings did not appear to contradict previous reports that learning disabled children develop linguistic categorization rules at expected ages (Bartel et al., 1973). On the Sentence Production test which required that a grammatical sentence be formulated using various stimulus words, the learning disabled adolescents exhibited reduction in the speed and accuracy with which they formulated sentences. In addition, the learning disabled adolescents were relatively poorer at defining words. Their responses lacked inclusion of abstract, general aspects of the concepts.

Wiig and Semel (1975) indicated that their findings suggest "a relationship between productive language deficits in learning disabilities and (1) delays in the development of specific aspects of cognition and convergent and divergent production of semantic units and (2) reductions in the retrieval of verbal labels and syntactic structures (Goldstein, 1948, Goodglass and Kaplan, 1972, Guilford, 1967, Luria, 1973, Schuell, 1965)" (p. 7). Moreover, the authors reported that their findings supported previous observations of oral language problems in children with learning disabilities. The findings further suggest that productive language deficits associated with learning disabilities may "persist" into adolescence and may be related to previously observed difficulties in language processing associated with learning disabilities (Wiig and Semel, 1973, 1974, Vogel, 1974). The authors indicated a need for early screening and identification of productive language deficits and an emphasis on language production abilities in the educational management of the learning disabled child and adolescent.

Written Expression

Marked impairment in spelling and all forms of written expression have been found consistently by those who have worked with children and adolescents who have been categorized as dyslexic, neurologically impaired, brain-injured, and specific learning disabled (Boder, 1971, deHirsch, 1963, Lerner, 1971, Myers and Hammill, 1969, Myklebust, 1973, McLeod, 1975, Orton, 1937, Saunders, 1962).

According to Myklebust (1965, 1973) the learning of written language is a developmental process which continues through adolescence. Johnson and Myklebust (1967) described writing as a form of expressive language and a complex process involving the highest forms of language. They attributed difficulties of written language to deficits in auditory comprehension, e.g., auditory discrimination problems, oral syntax disorders, reauditorization deficits, reading difficulties, and disturbances in visual motor integration. Through use of his Picture Story Language Test (1965), Myklebust has attempted to devise a means of studying the characteristics of the written language of the learning disabled. Using this test, Myklebust (1973) has studied the characteristics of the written language of children and adolescents whom he categorized as dyslexic and learning disabled. The dyslexic population consisted of 66 children with age ranges of seven years to 18 years. On EEG and neurological evaluations, 83.8 percent had positive findings. A normal control was also chosen from urban public schools. The dyslexics experienced major difficulty in written expression on the categories of story length and syntax. Normal children achieved adult level syntax at the age of eleven, whereas the dyslexic did not reach this maturity until the age of 15. Also, Myklebust found positive correlations between auditory processes and written language.

Other investigators, e.g., Boder (1971) and deHirsch (1963), have described the writing problems of the learning disabled. According to Boder, certain spelling patterns can be used in the identification of dyslexia. She utilized the term "dysgraphia" to describe severe spelling and handwriting problems of dyslexics. This term has been used by others (Johnson and Myklebust, 1965, deHirsch, 1963, Hermann, 1959). DeHirsch (1963) described some dyslexic adolescents as possessing bizarre spelling patterns due to an inability to retain the internal design of printed words and to carry the "Gestalt" of a word into another setting. Poor visual and auditory memory as well as poor visual and auditory discrimination were given as causes of spelling difficulties in adolescents.

Since the introduction of the phenomena strephosymbolia or twisted symbols, by Orton (1937), the literature has been replete with the description of learning disabled children and adolescents' reversals and rotations in written expression. Most often, severe spelling problems have been cited as symptoms of other language and perceptual difficulties, i.e., auditory receptive problems, visual-motor integration difficulties, sound blending ability, auditory-visual integration and memory, and so forth. Except for perhaps Myklebust (1973), relatively little systematic analysis of problems and processes involved in written expression has been conducted with the adolescent learning disabled.

Information Processing and Language Behavior

One promising approach to the investigation of language problems of learning disabled adolescents is based on work in psycholinguistics and cognitive psychology, particularly information theory. Researchers in these fields are specifically concerned with issues relating to selecting, storing, processing, and retrieving relevant information in a learner's environment. They have frequently stressed the limited capacity of the human information-processing system, and the importance of subjective organization and efficient high level cognitive and linguistic processes or strategies for recoding of stimulus input in maximizing the amount of relevant information that can be received, processed, and remembered (Ausubel, 1968, Broadbent, 1958, Bruner, Goodnow, and Austin, 1956, Bruner, Oliver, and Greenfield, 1966, Hagen, 1972, Hunt, 1966, Mandler, 1967, McNeill, 1970, Miller, 1956, Miller, Gallanter, and Pribram, 1960, Neisser, 1967, Newell and Simon, 1972, Olson, 1970, Piaget, 1951, 1955, 1966, 1970, Slobin, 1971, Taba, 1966, Tulving, 1962, Tulving and Donaldson, 1972, Vygotsky, 1962, White, 1965). In fact, school learning and social adaptation in general are greatly dependent upon the ability to accurately decode, interpret, and encode stimulus input by the learner. Hence, in academic learning situations, the child is viewed as an active learner who possesses a repertoire of organizational processes from which he or she must select those that are appropriate to the particular learning situation and exclude irrelevant or task-incidental information.

In a recent comprehensive review of the literature concerning the language and language behavior of the mentally retarded, Sitko and Semmel (1973) noted that in the last decade, various reviews of the research literature on linguistic problems of the mentally retarded reflected minimal influences of the important developments in the fields of psycholinguistics and information theory. As an example, the authors pointed out that little attention had been given to the cognitive or organization strategies employed by retarded children in processing language. Moreover, researchers had devoted little attention to the grammatical or generative aspects of the language system of retarded children. In our view, these same conclusions pertain to research focusing on the learning disabled child or adolescent. The scarcity of literature we discovered on linguistic problems of the learning disabled child and/or adolescent reflected minimal influences of the important developments in the fields of linguistics, psycholinguistics, and information theory as indicated above. Research related to the language of learning disabled children and adolescents has mainly focused on the performance aspect of language behavior, i.e., descriptive aspects of the child or adolescent's speech and the psychological variables which affect such behavior. Considering the importance of efficient information processing in human learning and memory, it is possible that the memory deficit and other deficits, including reading deficits attributed to learning disabled children and adolescents, may be due in part to faulty or inefficient processing and organization of linguistic stimuli.

Indeed this position is supported in the area of mental retardation by several investigators who have studied the learning characteristics of moderately and mildly retarded children and adolescents (cf. Blanton, 1974, Butterfield and Belmont, 1972, Cawley, Goodstein, and Burrow, 1972, Ellis, 1970, Gerjuoy and Spitz, 1966, Gruen and Korte, 1973, Jensen, 1970, Martin, 1967, Milgram, 1971, Prehm, 1968, Riegel and Taylor, 1974, Semmel, 1967, Sitko and Semmel, 1973, Spitz, 1966, 1973). These studies provide strong evidence that retarded subjects tend to use low level and inefficient organizational or recoding strategies in processing a wide range of linguistic material in learning tasks. Despite these findings, there is additional evidence that EMR children and adolescents do possess the competence necessary for recoding certain types of linguistic information when environmental cues are provided which facilitate the use of higher order organizational abilities. Several studies have revealed that EMR children and adolescents can be trained or cued to use specific linguistic strategies to facilitate the acquisition and retention of linguistic material (Agard, 1971, Blanton, 1974, Gerjuoy and Alvarez, 1969, Martin, 1967, Riegel et al., 1973, Rohwer, 1967, Ross, Ross, and Downing, 1973, Sitko and Semmel, 1972, Turnbull, 1974, Vitello, 1973, Whitley and Taylor, 1973). Findings from these studies suggest that educators may be able to improve storage and/or retrieval of information by retarded children and make information more "accessible" to their memory through the development of specific pedagogical cueing and training procedures and through the structure and presentation of learning materials in a well-organized state. It is important to determine if similar training with learning disabled subjects will result in the use of cognitive and/or linguistic processing strategies that prove more efficient than those which currently characterize this population of school-age children and adolescents.

In essence, from a psycholinguistic point of view, it is important to determine if the linguistic problems associated with learning disabilities are due to performance variables (e.g., short-term memory deficits, attentional deficits, social-cultural-situational factors, motivation, and so on) or to competence variables (i.e., lack of knowledge of specific grammatical, phonological and/or semantic relationships or rules), or perhaps the interaction of both competence and performance variables.

In most definitions of learning disabilities there is some reference to difficulty with information processing and information. The relationship between information processing and language and speech difficulties in the learning disabled has not been clearly established. Measures utilized to assess information processing are still in a primitive state. For instance, in the area of reading Orlando (1973) states,

> The measures used to assess 'information-processing deficits' are the same measures that have been used for years by school psychologists to identify general visual and auditory problems, without regard to specific reading skill behaviors of the child. (p. 268)

Most often, the information processing skills of learning disabled children and adolescents have been assessed by such standardized instruments of auditory and visual-motor perception as The Wepman Test of Auditory Discrimination (Wepman, 1958), the ITPA, the Visual Motor Gestalt Test (Bender, 1938), or the Developmental Test of Visual Perception (Frostig and Horne, 1964). Recently, the usefulness of these types of tests and their related programs in determining, assessing, and enhancing critical processing skills in language and reading has been seriously questioned (Camp, 1973, Cohen, 1969, Hammill and Larsen, 1974ab, Hammill and Wiederholt, 1973, Mann, 1970, Orlando, 1973, Samuels, 1973, Sedlack and Weener, 1973, Ysseldyke, 1973). These authors provide excellent reviews of the mass of literature related to decoding, integration, and encoding of auditory and visual stimuli with learning disabled subjects. More specific studies and/or reviews dealing with information processing of a wide variety of information in learning disabled subjects may be found in the following sources: Birch and Belmont, 1964, Bryan, 1974, Chalfant and Scheffelin, 1969, Faust, 1970, Haring and Ridgway, 1967, Johnson and Myklebust, 1967, Kagen and Kogan, 1970, Keough, 1973, Keough and Donlon, 1972, McGrady and Olson, 1970, Sabatino, 1968, 1973, Sabatino and Hayden, 1970.

Unfortunately, past studies of information processing of learning disabled subjects have yielded many diverse and conflicting findings. As a result, our understanding of the basic processes underlying language problems of learning disabled children and adolescents is extremely limited as is our confidence in prescribing efficient language remediation and training programs. In our view, there is a scarcity of investigations which have explored the nature and extent of language processing strategies and language deficits in learning disabled children and particularly adolescents. For instance, there is some indication that an individual's ability to process and organize linguistic information may be strongly related to the nature of the reading process. Despite the importance of efficient information processing in learning and memory, there has been relatively little attention among researchers in learning disabilities to the language and cognitive strategies observed among learning disabled children and adolescents in various academic learning situations. Chalfant and Scheffelin (1969) indicated the need for comprehensive research on both receptive and expressive language disorders or difficulties related to central processing dysfunctions. Moreover, Keough and Donlon (1972) concluded that assessment of how a child approaches and attempts to solve a learning task, the kind of information he or she uses, how he or she organizes it, and the speed with which he or she uses it, may provide critical information for development of remedial programs (p. 336). However, it is only recently that researchers in learning disabilities have begun to focus their attention on language processing strategies of learning disabled children and adolescents (e.g., Bartel, Grill, and Bartel, 1973, Semel and Wiig, 1975, a, b, Vogel, 1974, Wiig and Semel, 1973, 1974, 1975).

In their excellent investigation of language production deficits in learning disabled adolescents, Wiig and Semel (1975) concluded that the productive language deficits observed in their population of learning disabled adolescents may be related to previously observed difficulties in language processing associated with learning disabilities (Vogel, 1974, Wiig and Semel, 1973, 1974). They suggested that observed deficits in the accuracy and speed of convergent and divergent production of semantic units, confrontation naming, and sentence formulation may reflect receptive language problems in learning disabilities, e.g., reduced comprehension of linguistic structures, linguistic concepts requiring logical operations, etc. Following their review of language processing deficits in learning disabled children and adolescents, the same authors (Semel and Wiig, 1975a) concluded that future investigations in learning disabilities should consider "the relationships between visual perception, linguistic, and cognitive processing, and 'channel capacity' and 'chunking' characteristics of learning disabled youngsters" (p. 8).

Freston and Drew (1974) investigated the verbal performance of learning disabled children as a function of input organization. In their study, the authors explored the affects of organized versus unorganized material on the free recall performance of learning disabled children (CA 7-17 years). The subject sample was randomly subdivided into two groups receiving either organized or unorganized verbal material. The materials for the study consisted of 12 tests of five stimulus words each. Organized lists were composed of four conceptual categories from stimuli of high, intermediate, and low difficulty as selected on the basis of their frequency of occurrence in English language usage. This resulted in a low, intermediate, and high difficulty organized list for each conceptual category. The 12 unorganized lists were contrived using identical stimulus items of high, intermediate, and low difficulty, with the conceptual categories randomized. Subjects were orally presented the words in each list at a rate of one per second and were given a 30-second free recall period following each of 12 lists. The results of the study indicated that the degree of material organization did not significantly influence subject performance. Subjects did, however, perform differently as a function of material difficulty. Subjects responded correctly with greater frequency on material of low difficulty than on material of intermediate and high difficulty. The data failed to support previous work with subjects of normal intelligence (Drew and Altman, 1970) and with adolescent EMR subjects (Gerjuoy and Spitz, 1966, Gerjuoy and Alvarez, 1969), which has provided evidence of a facilitative influence of organized material. In order to explain the findings, the authors hypothesized that absence of more effective recall of organized rather than unorganized material may be due to the fact that the learning disabled subjects were not sensitive to the conceptual framework used to organize the material and did not codify the material efficiently. The authors indicated that factors such as attending, codification, storage, and recall should be studied in depth in subsequent investigations.

Bartel, Grill, and Bartel (1973) indicated that there is a dearth in the literature on precisely how children with learning disabilities handle specific language-related tasks. In their study, these investigators utilized a free word association technique to determine the syntactic-paradigmatic shift in learning disabled and normal children. In normal children, a shift from the use of syntactic or sequential responses (e.g., when presented with red, the child responds ball) to paradigmatic (same form-class; e.g., red-blue) occurs developmentally. According to McNeill (1970) the paradigmatic shift results from some type of semantic-consolidation process between the ages of six and eight years, as the child sequentially acquires a number of discriminatory features of words and adds new words to his or her lexicon. McNeill further hypothesizes that syntagmatic or syntactic associations reflect a basically different and less efficient principle of organization of the child's lexicon than do paradigmatic associations. There is some evidence that EMR children reveal significantly fewer paradigmatic responses on a free-word-association task than do nonretarded children of the same age, and that MA rather then CA is a better predictor of word associations of retarded children (Semmel, Barritt, Bennett, and Perfetti, 1968, Sitko, 1970). This finding has been interpreted as revealing a lag among EMR children, characterized by a weakness in organizing linguistic units in hierarchical classes (Semmel et al., 1968). Although EMR children have the tendency to emit sequential-associative (syntagmatic) responses on word association tasks, previous results have shown significant individual differences in word-association responses within EMR samples (Semmel, Barritt, Bennett, and Perfitti, 1968, Semmel, Sitko, and Semmel, 1968).

In contrast, in their study with learning disabled and normal children, Bartel, Grill, and Bartel (1973) found no significant differences between the number of paradigmatic responses emitted by normal and learning disabled children on a word association task of 50 stimulus words. All children performed best when the stimulus word was a noun and performed most poorly on prepositions. Moreover, older children (including some adolescents) in each group performed better than younger children. Among learning disabled children, a significant interaction between IQ and age was found, with younger subjects of lower IQ (85) performing most poorly and exhibiting the most perseverations. The authors concluded that learning disabled children develop linguistic categorization strategies at approximately the same ages as normal children. In order to explain their findings, the authors hypothesized that two other factors which may affect linguistic performance of learning disabled children in the usual language context of speaking, listening, or writing, are memory and attention. Hence while the learning disabled children resemble normal children in linguistic competence and the acquisition of linguistic strategies for categorizing words, it is possible that the reason they resemble EMR children in linguistic performance may be due to memory and attentional deficits.

Several other investigators in learning disabilities have stressed the importance and close relationship between memory and attentional processes and language proficiency and deficit (e.g., Birch, 1964, Graham, 1968, Hallahan and Cruickshank, 1973, Johnson and Myklebust, 1967, Samuels, 1973, Senf and Freundl, 1971, Strauss and Lehtinen, 1941). In her review of auditory and visual processing and cross-modal integration of learning disabled children, Bryan (1974) concluded that "there is no systematically gathered evidence demonstrating that learning disabled children have simple perceptual problems, hyperactivity, difficulty with simple cross-modal integration, minimal brain damage or normal intelligence" (p. 308). Rather than possessing auditory and visual processing difficulties per se, learning disabled children have difficulties in "paying attention, using language, and coping with complex auditory and visual presentations" (p. 308).

Tarver and Hallahan (1974) reviewed the findings of 21 experimental studies of attention deficits in children with learning disabilities including studies of distractibility, hyperactivity, impulsivity, vigilance, and intersensory integration. Their review included children from kindergarten age to 16 years, three months of age. Based on the accumulated evidence, the authors concluded that (1) children with learning disabilities, including "underachievers" and children with reading disabilities, exhibit more distractibility than controls on figure-ground perception tasks involving embedded contexts and on tests of incidental versus central learning. On the other hand they are not differentially distracted by other types of distractors, including flashing lights or extraneous color cues. (2) Hyperactivity of learning disabled children may be situational-specific, with high levels of activity being exhibited in more structured situations. (3) Children with learning disabilities tend to be more impulsive (i.e., less reflective) as a group than normal controls. Correlational evidence suggested that measures of impulsivity and inability to ignore irrelevant information indicate deficiencies in control of attention" (p. 566). (4) Children with learning disabilities, particularly hyperactive children, are deficient in the ability to maintain attention over prolonged periods of time. Tarver and Hallahan further indicated that WISC subtest patterns may be of some value in differential diagnosis of attentional processes in learning disabilities. Nevertheless, they pointed out the important fact that although a WISC subpattern may be characteristic of groups of disabled readers, it is not characteristic of individuals. Moreover, they indicated that particular subtests of standardized instruments like the WISC do not lend themselves to disclosing discrete and specific aspects of the child's psychological functioning.

In his critique of the research on success and failure in learning to read, Samuels (1973) found several shortcomings of research on causes of reading difficulty which have resulted in invalid research results and conclusions. Much of the research was on variables which have little or no direct connection with basic processes involved in learning. Samuels particularly criticized "comparing good and poor readers on variables which had no direct connection with the learning process, using matched-group designs, unreliability of prediction formulas, reading achievement and IQ tests, piecemeal research, and using students with a history of reading failure" (p. 229). Samuels emphasized that in order to overcome the problem of piecemeal research, the basic processes involved in verbal learning should be investigated in a systematic and comprehensive manner. Based on his review, the research literature had currently provided evidence for several processes in associational learning which were also involved in learning to read. These basic processes included: attentional processes, distinctive-feature learning, visual and auditory memory, auditory discrimination, and mediational processes. In particular, the review of literature on attentional processes had indicated that (1) physiological correlates (e.g., GSR, heart rate, etc.) were related to learning, (2) that students who were low in achievement including poor readers, tended also to be more distractible than students who were high in achievement, and (3) that at the upper elementary level, a positive relationship exists between attention and achievement (p. 213). There was also evidence that wholeword methods of teaching in combination with highly discriminable words and the use of incidental cues such as color coding words, lead to rapid initial learning but poor transfer. Samuels indicated that questions concerning where the learner focuses attention, what cues she or he selects and whether focal attention is directed at a relevant dimension of the stimulus complex, have important implications for reading. He further reported that research on visual memory and reading had revealed that poor reading performance was associated with inferior visual memory. Moreover, the superior visual memory of good readers appeared to be due to their ability to identify distinctive features and to encode them verbally with relatively greater accuracy and consistency.

Samuels presented an information-processing model of associational learning as a method for studying variables or factors associated with differences in reading achievement (and hence learning disabilities). This model was based on conceptualizations from cognitive psychology and contained the components which were considered to be basic to the verbal learning process, i.e., attention, visual and auditory discrimination, auditory and visual memory, short and long term memory, and mediation. In addition, a viable research design is provided for investigating and relating the various components of the model.

A particular important application of an information processing approach to language functioning relates to teaching reading and constructing reading materials for learning disabled children and adolescents. In fact, there is evidence that the ability to process and organize linguistic information may be strongly related to the nature of the reading process and to reading difficulties of poor readers (Bower, 1970, Goodman, 1965, 1968, 1969, 1972, Kolers, 1969, Lefevre, 1964, Neisser, 1967, Ryan and Semmel, 1969, Sitko and Semmel, 1973, Smith, 1971). However, despite the importance of active and efficient information processing in learning and memory, there has been relatively little attention among reading researchers in learning disabilities to the possible relationship between information processing in learning and memory and reading behavior. Much of the reading instruction and research with learning disabled children and adolescents has not been based upon language structure and language processing but rather upon graphic features and perceptual features of language.

In summarizing the various models for reading based on the active participation of the reader, Ryan and Semmel (1969), emphasized the importance of efficient and hierarchical language processing strategies in both beginning and mature reading. They concluded that reading can be viewed as a "constructive active process in which the reader uses his cognitive and linguistic knowledge to reproduce a probable utterance from a careful sampling of cues and then matches that prediction for appropriateness" (p. 81). Ryan and Semmel presented considerable evidence which suggested that reading is a cue sampling process rather than one requiring absolute discrimination of detail. The authors further emphasized that children's reading material should be written to maximize the child's opportunity to develop efficient habits of forming and testing hypotheses, and to allow the child to make use of linguistic context (semantic and syntactic relationships) in determining word perception and comprehension. Moreover, the beginning retarded or disabled reader should be encouraged by the teacher to apply appropriate high-order language strategies--such strategies are already available from oral language usage. Emphasis should be focused on "conceptual" aspects of reading rather than on "perceptual" aspects and on relations rather than on single words.

It seems probable that some of the difficulty experienced by learning disabled children and adolescents in reading comprehension and other areas of reading may be due to a basic weakness in their ability to efficiently and hierarchically process and organize reading materials. In fact, there already exists some evidence with mildly retarded subjects which indicates that the difficulty of retarded children in reading comprehension may be the result of a basic inability to organize verbal input efficiently for storage and retrieval during the act of reading (Bilsky and Evans, 1970, Blanton, 1974, Evans, 1970). Our review of literature concerning language characteristics of learning disabled children and adolescents suggests that many of the language strategies exhibited by learning disabled subjects appear to be deficient and to reflect primitive and inefficient levels of cognitive and linguistic information processing. It seems logical to suggest that language training techniques involving learning disabled subjects should include the modification of relatively inefficient language strategies to more hierarchical rule-governed strategies. Hence learning disabled children and adolescents should be taught to impose efficient organization on linguistic information. A further review and implications of the literature in information processing as it relates to reading behavior of learning disabled children and adolescents is presented in our other conference paper (Gillespie and Sitko, 1975).

Intervention of Speech and Language Difficulties

Adequate development of instructional strategies in language (excluding speech disorders for the adolescent learning disabled) is lacking. Unfortunately, there is a dearth of carefully validated programming in all areas for children and adolescents designated as learning disabled. In addition, the results of research concerning various instructional approaches have yielded conflicting results, and many studies have been criticized for being improperly designed (Wiederholt, 1974). Specifically, the efficacy of training specific language skills (e.g., those constructs of language exemplified by research and training with the ITPA) has not been sufficiently established (Hammill and Larson, 1974a, Sedlack and Weener, 1973). Furthermore, the relationship between training in language skills and school achievement has not been thoroughly examined (Hammill and Larson, 1974a, Sedlack and Weener, 1973). Hence, a discussion of instructional strategies in language for the adolescent learning disabled is clouded by many issues discussed previously in this paper, i.e., a variety of definitions of language, inadequate assessment techniques, lack of validated programs, and a heterogeneous population subsumed under the category of learning disabilities. Moreover, the adolescent learning disabled may have many additional difficulties such as socioemotional problems (Gordon, 1970) and severe reading and spelling retardation (deHirsh, 1963) which serve to confound the training picture.

The development of early screening, identification, and intervention strategies for all language impaired children, including those who are learning disabled, has frequently been urged by educators (e.g., Minskoff, 1974, Marge, 1972). In a discussion of this issue, Marge (1972) states,

> The research and clinical evidence, moreover, is not noticeably in favor of the efficacy of early intervention for all linguistically handicapped children. The 'wait and see policy' invariably has led

> to many unnecessary complications which enlarge the problem of providing an effective training program. (p. 301)

Marge also presents an opposing view held by Lenneberg (1966) who urges that language training should be postponed until the child matures in language at his or her own rate. If language functioning is inadequate, special training is given at a later age. Lenneberg feels that later training is more beneficial because the child has more social experiences and is capable of understanding the purpose for instruction.

Early intervention of language problems seems to be favored by most special educators. There are many language programs now available commercially for handicapped children, including the learning disabled. Several of these are based upon the ITPA such as the MWM Program for Developing Language Abilities (Minskoff, Wiseman, and Minskoff, 1972) and the Goal Program (Karnes, 1973). Remedial activities for use after diagnosis with the ITPA have been developed by Bush and Giles (1969), Karnes (1968), and Rupert (1971). Other language programs are the Peabody Language Development Kits (Dunn and Smith, 1965, 1966, 1967, Dunn and Horton, 1968), The Wilson Syntax Program (Wilson, 1972), and Distar (Engleman and Osborn, 1970). For a thorough review of language intervention programs, see Hammill and Bartel (1975).

Nature of Language Programs

According to Marge (1972), intervention programs in language fall into two broad categories: (1) diagnostic approaches, or those methods which assess the status of the child's disability, attempt to determine etiology and prognosis, and suggest appropriate procedures for modifying the child's linguistic behavior; and (2) training methods, or those procedures which assist the child in attaining language function appropriate for his or her age (p. 93).

Many of the language programs in learning disabilities appear to be in the former category in that educators have attempted to determine the etiology of child's language disorder (brain damage, perceptual impairment, and so forth), and the causation presupposes the nature of the training program. For example, if the child is found to be brain damaged, supposed language correlated activities in categories such as auditory and visual perception, and perceptual motor skills may be included in the language program. However, the determination of etiology may not be an effective means of developing language programs (Marge, 1972, Zedler, 1972). If children are placed in a category, e.g., learning disabled, language programs developed for them may assume that uniformity exists between individuals in language behaviors (Zedler, 1972). As noted earlier in this paper, learning disabled children have typically displayed heterogeneity in learning behaviors.

Another approach to language disorders is to determine the exact nature of the child's or adolescent's linguistic behaviors. The ITPA, and the programs based upon its subtests, was an attempt by Kirk and his associates to assess and program for the intra-individual differences of the child. While the concept is admirable, the theoretical constructs of the ITPA has been criticized as to the lack of inclusion of current findings in language (Sitko and Semmel, 1973). Further research in the field will hopefully yield data that would allow the programmer to ascertain the linguistic strategies of the child or adolescent and provide a variety of alternatives for intervention.

Adolescents and Language Intervention

Although language intervention of learning disabled adolescents at the secondary level has been proposed by several learning disabilities specialists (e.g., Bailey, 1975, Drake, 1970, deHirsch, 1963, Giles, 1975, Lyness, 1973, Wiig and Semel, 1975), the emphasis in language for the most remains on early intervention. In addition, the acquisition of language and perceptual skills beyond a certain age has been questioned (Bannatyne, 1971). Wepman et al. (1975) in discussing intervention strategies for the learning disabled differentiate between intervention before and after age 12, i.e., before adolescence the programs are developmental in nature as contrasted to their being compensatory for older children. According to Wepman et al., the adolescent ought to be taught to utilize his or her best skills in coping with the academic demands of the secondary school programs.

The present authors feel language programs for adolescents should be developed as thoroughly as those at the elementary level. Although a great deal of language maturity is relatively achieved at four years of age (Menyuk, 1971), children with language difficulties continue to develop language skills, some into their midteens, if the nature of their language disorder is severe (Mays, 1972). According to several investigators of language, the language development of children with language difficulties is slowed down rather than being qualitatively different from that of normal children (Fygetakis and Ingram, 1973, Morehead and Ingram, 1970, Sitko and Semmel, 1973). In particular developmental lags in learning disabled adolescents' language have been reported by Wiig and Semel (1975).

In our opinion, if the adolescent learning disabled is developmentally behind his or her peers, a language program which has adequately task analyzed the linguistic skills of the adolescent should be utilized. In fact, several investigators have recently advocated task analysis as an efficient methodological approach for improving language and other instruction with learning disabled individuals (Bijou, 1970, Siegal, 1972, Lloyd, 1975, Ysseldyke and Salvia, 1974). Matching instructional strategies to the needs of the adolescents who have language difficulties should extend beyond formal test results. As stated previously, the efficacy of test related programs in relationship to academic gains has been questioned. In addition, such test related programs involve the development of instructional decisions based upon testing that occurs outside the environment or curriculum found in the classroom or secondary program. Because of the variability of settings and needs, it is impossible to use an educational program that would be appropriate for all interventions. Solutions to educational problems are most often situationally specific.

As an alternative to global assessment measurements, we propose the utilization of a task analytic approach. Such an approach should consider the child, teacher, material, and situational variables. In task analysis, the educator analyzes the steps required to complete the task as well as the entry level of the student. The instruction is begun at the point which the student has been assessed to be on the skill continua. At the present time, a knowledge of the interaction of the adolescent's language capabilities with the content being offered, the manner of presentation, motivational factors, and so forth, is not known.

More research is needed in determining the developmental stages of the language of adolescents and on qualitative rather than quantitative differences in language processing between those adolescents who possess adequate language skills as compared to those who have been designated as having language difficulties.

Furthermore, educational personnel must form teams that will view educational programming as a problem solving or decision making process. At the center of the process should be the teacher. If programming is to be fully implemented, the teacher should be given the opportunity to engage in the decision making process. Also there should be a utilization of a systematic approach to programming. Because of the variability in settings and needs, it is impossible to predict an appropriate educational strategy without consideration of the total learning environment. Most often solutions to problems are situationally dependent. Therefore it is imperative that educational personnel be skilled in the process of decision making or problem solving. One such systematic approach to decision making has recently been formulated by the present authors (Gillespie and Sitko, 1974, 1975). This diagnostic teaching approach stresses the importance of training teachers to be effective organizers of instruction and child-oriented decision makers in order to maximize children's and/or adolescent's use of efficient information processing abilities.

Conclusions

Research on language behavior of both learning disabled children and adolescents have revealed a wide range of linguistic and speech deficits. With the scarcity of research devoted to the language difficulties of the learning disabled, there is little to guide educational personnel in developing individualized instructional strategies in speech and language. At best, the results of the research reviewed may only provide hypotheses or "in the ballpark hunches" which can be utilized in finding solutions to an individual learning disabled child or adolescents' language difficulty in the classroom. Very little attention has been given to how the environmental and organismic variables studied in basic research affect the complex types of language oriented learning and processing to be found in the classroom. Reliable, valid, and educationally relevant measures of adolescents' language competencies do not exist. Instead we are left with a host of norm-referenced global measures of language aptitudes that have modest predictive validity and virtually no diagnostic validity. In the assessment of language, especially for adolescents, we have a very limited range of standardized instruments, many based on doctrinaire inadequately researched theories of learning disabilities. Moreover, there is a dearth of criterion-referenced instruments in language for the adolescent.

In all the comparison studies conducted in order to determine the language characteristics of learning disabled children and adolescents, typically a group of individuals has been classified in a certain manner. Categorizing, in most cases, leads to stereotyping and group characteristics are ascribed to individuals (Reynolds and Balow, 1972). Often, most of these ascribed language characteristics are communicated to educators without consideration of the interaction among such variables as educational settings, teacher preparation, experiental background, social-cultural factors, emotional adjustment, etc. If programming is to be beneficial, the interaction of the individual with his or her total environment must be considered. If language assessment for the adolescent learning disabled is to be meaningful, more reliable valid language measures which reflect current linguistic developments and are normed to specific adolescent populations should be constructed. In addition, assessment should be related to the purposes for which the adolescent has been referred. Language assessment should not be used to categorize or place the adolescent, but rather should be used to enhance the adolescent's learning potential and achievement. The main concern should be one of precise, individual, in situ task analytic assessment followed by the selection of a variety of instructional alternatives which take into consideration the needs of individual and situational factors.

For example, more attention must be given to inter and intra individual differences of learning disabled adolescents. Even if we had rich resources in instrumentation, inter and intra learner variability among children and adolescents with learning and language difficulties is so great that tests have limited value in instructional design. Although diagnostic tests have been constructed in order to isolate variability within individuals, this technique does not consider in situ assessment. Hence one of the biggest challenges of a language assessment program is to bring its objectives in line with the behavioral characteristics and linguistic needs of the learning disabled child or adolescent.

In general, there is an extreme dearth of empirically oriented and methodologically sound investigations dealing with speech and language difficulties with the adolescent learning disabled. Furthermore, there appears to be too many gaps in related language research of children designated learning disabled which make it practically impossible to generalize findings based on child LD samples to the LD adolescent population. The literature has been unclear about the exact nature of the linguistic problems of the LD adolescent. Very little progress has been made in the study of phonological, morphological, syntactic, and semantic development of language in LD children and adolescents. Except for the excellent research instigated by Bartel, Drew, Freston, Goodglass, Menyuk, Rosenthal, Samuels, Semmel, Vogel, Wiig, and a few others, the language research in general has not reflected or applied recent and exciting developments in contemporary linguistics, psycholinguistics, and cognitive psychology. Moreover, studies dealing with the language of populations labeled learning disabled reflect a wide variety of interpretations and assessments of language. Additional research is "sorely" needed in the receptive, integrative, and expressive or productive aspects of learning disabled children's and adolescents' oral and written language.

In our view, future language research should explore the exact nature and extent of basic language and/or cognitive-processing strategies and language deficits among learning disabled children and adolescents in language related academic learning situations. There already is strong evidence which suggests that many of the language strategies exhibited by learning disabled children and adolescents appear to be deficient and to reflect primitive and inefficient levels of cognitive and linguistic information processing. Viable models similar to Samuel's (1973) information-processing model of associational learning are definitely needed to stimulate and guide investigations of variables and factors associated with individual differences in language behavior (including reading and writing) and language development. It is fruitless to prescribe language remediation and training programs for learning disabled subjects until we obtain some understanding of the basic processes underlying the language and speech difficulties of learning disabled children and adolescents. In essence, it is important to determine if linguistic problems associated with learning disabilities are due to performance variables (e.g., short-term memory deficits, attentional deficits, social-cultural-situational factors, motivation, and so on) or to competence variables (i.e., lack of knowledge of specific grammatical, phonological, and/or semantic relationships or rules), or perhaps the interaction of both competence and performance variables.

As was the case with language assessment and characteristics of language behavior, evidence of effective language programming of the adolescent learning disabled is lacking. Recently, more attention has been directed toward the development of effective instructional strategies for those learning disabled adolescents who are lacking in basic language skills. In particular, early screening, identification, and intervention of language problems seems to be favored by special educators. While interest in developing efficient language instructional strategies in language disabilities is increasing, the promulgation of materials and programs that have not been carefully validated with adolescents is presently occurring. The adaptation or adoption of assessment techniques and instructional strategies that have had questionable efficacy with younger learning disabled children is not the solution to programming for adolescents.

The present authors' own orientation to language programming was discussed. This approach is based upon in situ assessment of the child's or adolescent's linguistic strategies and a task-analytic approach to the development of linguistic skills which considers the interaction of teacher, child, material, and situational variables. In addition, the approach views educational programming as a systematic problem solving or decision making process. It also stresses the importance of training teachers to be effective organizers of instruction and child oriented decision makers in order to maximize children's and/or adolescent's use of efficient information processing abilities. In our opinion, teachers who are effectively trained in the competencies which constitute a decision making process will more sufficiently meet the individual linguistic instructional needs of learning disabled children and/or adolescents.

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ADOLESCENTS WITH LEARNING DISABILITIES: THE PROBLEM IN PERSPECTIVE

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One of the most remarkable phenomena in special education over the past decade has been the rapid growth of the field of learning disabilities. During this period parents, legislators, administrators, physicians, psychologists, and educators focused their attention and resources upon providing service to children with this handicapping condition. A great deal of progress was made regarding service to young children with learning disabilities; regrettably, the adolescent with this handicapping condition received little attention.

As a result, one of today's current priorities of many of these same parents, legislators, and professionals, as well as others, is the adolescent with learning disabilities. This shift in attention appears to be prompted by: (1) the progression of children identified as having learning disabilities into adolescence and the secondary schools, (2) the belief that the continued growth of programs for children with learning disabilities in the elementary and pre-schools is propelled by its own momentum, and (3) the realization that even with early identification and treatment many learning disabled pupils simply cannot be "cured."

In this chapter, an overview is presented of the field of learning disabilities relative to its organizational growth, its conceptual growth, and issues therein.* In addition, some factors to be considered in future program development for the adolescent with learning disabilities are delineated. The purpose of this treatise is to provide those interested in establishing programs for the learning disabled in the secondary schools with basic information regarding the accomplishments as well as the current controversies in the field.

Organizational Growth

The actual birth of the field of learning disabilities (LD) can be traced to April 6, 1963, when Dr. Samuel A. Kirk stated in a speech at a conference sponsored by the Fund for Perceptually Handicapped Children, Inc.:

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*Portions of these discussions are taken from Wiederholt, J. L. Historical perspectives on the education of the learning disabled. In L. Mann & D. Sabatino (Eds.), The second review of special education. Philadelphia, Pa.: JSE Press, 1974.

> Recently, I have used the term "learning disabilities" to describe a group of children who have disorders in development of language, speech, reading, and associated communication skills needed for social interaction. In this group, I do not include children who have sensory handicaps such as blindness or deafness, because we have methods of managing and training the deaf and blind. I also exclude from this group children who have generalized mental retardation. (Kirk, 1963, p. 3)

The effects of this speech were staggering in two respects. First, it served as a catalyst for past interest and, second, it isolated the specific characteristics of the population.

The speech can be noted as a catalyst of past interest in that the members of the convention voted to reorganize themselves as the Association for Children with Learning Disabilities (ACLD). ACLD has grown rapidly during the last decade and has become a forum primarily for parents of LD children. This organization has played a large role in influencing legislation and the allocation of monies for service to children with LD.

The second effect of this speech was that the underlying characteristics of the LD population were isolated. These were: (1) the principle of disparity (implied discrepancy between ability and achievement), (2) a basic disorder in the learning processes (inhibition or interference in the development of spoken and/or written language), and (3) the children excluded by the definition (deaf, blind, mentally retarded).

The next few years evidenced several landmark publications and organizational growth. For example, in 1966 the first of three Task Force Reports was published. These Task Force Reports were funded by the National Society for Crippled Children and Adults, Inc., The National Institute of Neurological Diseases and Blindness of the National Institute of Health, The Society and the Neurological and Sensory Disease Service Program, and the U. S. Office of Education. Task Force I dealt with the terminology and identification of the learning disabled (Clements, 1966). In this report the ten most cited characteristics of learning disabled children were listed in order of their frequency of occurrence in the literature: (1) hyperactivity, (2) perceptual-motor impairments, (3) emotional lability, (4) general coordination deficits, (5) disorders of attention, (6) impulsiveness, (7) disorders of memory and thinking, (8) specific learning disabilities (reading, arithmetic, writing, spelling), (9) disorders of speech and hearing, and (10) equivocal neurological signs and electroencephalographic irregularities (Clements, 1966, p. 13).

The First Annual Report of the National Advisory Committee on Handicapped Children was published in 1968. In this report it was estimated that although there were approximately one to two million children who could be defined as learning disabled, only a few were receiving special education. A formal definition of LD was also posited.

> Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunctions, dyslexia, developmental aphasia, etc. They do not include learning problems due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage.(First Annual Report of the National Advisory Committee on Handicapped Children, January 31, 1968, p. 14)

During the same year--1968, The Division for Children with Learning Disabilities (DCLD) was organized within The Council for Exceptional Children (CEC). DCLD's stated purpose is to promote the education and general well-being of the learning disabled and is currently composed of over 7000 professionals from throughout the nation. While one of the youngest divisions in CEC, it has quickly become the second largest (the largest being the division concerned with the mentally retarded).

In 1969, the second and third of the three Task Force Reports mentioned earlier were published. Task Force II contained an analysis of the educational identification, assessment and evaluation procedures, educational programs, administration and classroom procedures, as well as professional preparation and legislation for the education of the learning disabled (Haring and Miller, 1969). Task Force III (Chalfant and Scheffelin, 1969) contained a review of the research on central processing dysfunctions in children relative to the analysis and synthesis of sensory information and dysfunctions in symbolic operations.

These various reports as well as individual and organizational pressure served as a foundation for legislative action. On February 28, 1969, Senator Ralph Yarbrough of Texas introduced The Children with Learning Disabilities Act of 1969 in the U. S. Senate (Senate Bill 1190). Representative Roland Pucinski of Illinois introduced a similar bill in the House of Representatives (House of Representatives Bill 8660). The Children with Learning Disabilities Act amended Title VI (known as the Education of the Handicapped Act of 1967) of the Elementary and Secondary Act by specifically providing authority to the U. S. Office of Education to establish programs for the learning disabled.

Two years later, the first major national effort was made by the Bureau of Education of the Handicapped (B.E.H.), U. S. Office of Education to provide services to LD children throughout the nation. The legislative mandate and appropriations of Public Law 91-230, EHA, Title VI, Part G, enabled B.E.H. to award grants to state educational agencies for the purpose of developing Child Service Demonstration Centers (CSDC). Eight state educational agencies were awarded grants upon the basis of their proposals for the fiscal years

1971-73. Fifteen additional states were awarded grants for 1972-74, twenty more states were added in 1973-75, and by 1974, forty states had model centers funded by B.E.H. These centers after vigorous evaluation and refinement are being used as models in stimulating state-wide service to LD children. Also, B.E.H. continued to provide monies for research and teacher preparation programs.

In addition to the CSDC's, a Leadership Training Institute in Learning Disabilities (LTI) was also funded by B.E.H. in 1971. The purposes of the first year of funding of the LTI were: (1) to prepare a document which surveyed and analyzed the LD field in relation to present knowledge and service, (2) to prepare a document which surveyed and analyzed present teacher preparation activities, and (3) to develop national plans for implementing strategies in research, training, and service (Bryant, Kass, and Wiederholt, 1972). Additional government funded reports were made available through the LTI during the subsequent years on the characteristics of children enrolled in the CSDC's, summaries of research, listings of tests, program evaluation techniques, and administrative considerations in the operation of LD programs.

Most states throughout the nation during the late 1960's and early 70s also addressed themselves to providing legislation and school programs for the learning disabled child. In addition, numerous state and private universities and colleges developed programs to prepare teachers, several textbooks on children with learning disorders were written, and untold numbers of tests and instructional materials were generated. In all, phenomenal advances were made in the provision of service to children with LD.

Recently, in 1973, a first major step was taken by B.E.H. for the adolescent with LD. As the result of increasing demands by professionals and parents for federal action in stimulating service for the adolescent with LD, this organization requested the LTI to assume responsibility for the preparation of a "state-of-the-art" document on secondary school programs for the learning disabled adolescent. This report was completed in 1975 (Wiederholt and McCarthy, 1975). The work had just begun.

In this section, an overview was presented of the organizational growth of the field of LD. Additional activities might have been selected for inclusion in this discussion which were as significant to the organizational growth of the field as those delineated. Nevertheless, as can be noted, by 1975 LD had become an accepted field of special education in the nation's elementary schools; the next decade will undoubtably evidence this same acceptance in the secondary schools.

Conceptual Growth

As noted in the previous section, the field of LD was only organized during the last decade. However, there was a previous period spanning over a century and a half in which professionals had been working with individuals with LD. These professionals were primarily concerned with the etiology, classification and description, and treatment of LD.

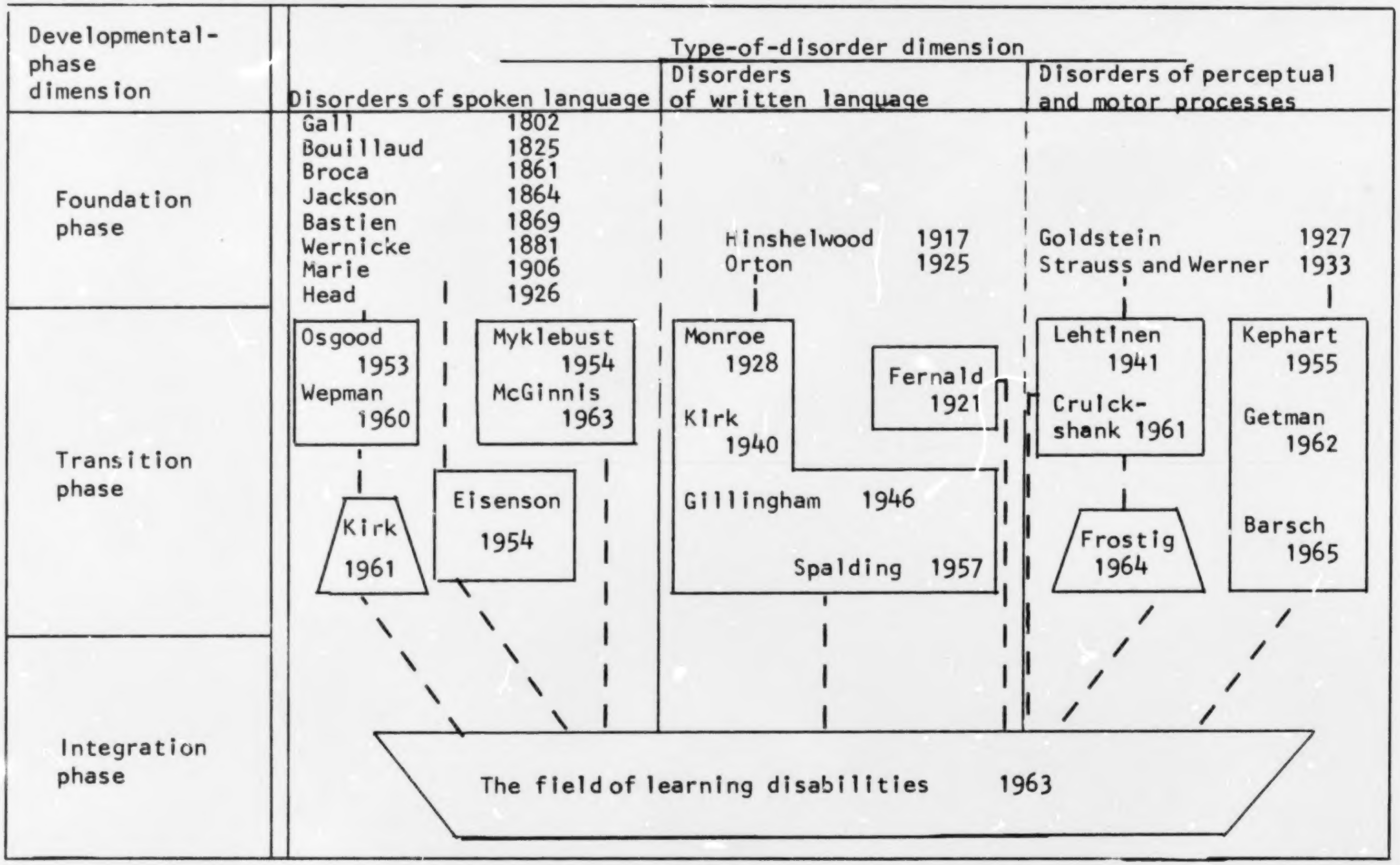
Developmental-phase dimension
Type-of-disorder dimension
Disorders of spoken language
Disorders of written language
Disorders of perceptual and motor processes
Foundation phase
Transition phase
Integration phase
Gall 1802
Bouillaud 1825
Broca 1861
Jackson 1864
Bastien 1869
Wernicke 1881
Marie 1906
Head 1926
Hinshelwood 1917
Orton 1925
Goldstein 1927
Strauss and Werner 1933
Osgood 1953
Wepman 1960
Myklebust 1954
McGinnis 1963
Monroe 1928
Kirk 1940
Fernald 1921
Gillingham 1946
Spalding 1957
Lehtinen 1941
Cruickshank 1961
Kephart 1955
Getman 1962
Barsch 1965
Kirk 1961
Eisenson 1954
Frostig 1964
The field of learning disabilities 1963

FIGURE 1

A TWO-DIMENSIONAL FRAMEWORK IN THE STUDY AND REMEDIATION OF LEARNING DISABILITIES

Wiederholt, J. L. Historical perspectives on the education of the learning disabled. In L. Mann & D. Sabatino (Eds.), The second review of special education. Philadelphia, Pa.: JSE Press, 1974.

This period of conceptual growth can be described in two dimensions. The first dimension refers to the type of disorder professionals were investigating. These can be conveniently grouped under three broad categories: (1) disorders of spoken language, (2) disorders of written language, and (3) disorders of perceptual and motor processes. The second dimension refers to the developmental phases of the field. During the first phase, the foundation of the field, physicians were primarily responsible for conceptualizing the etiology of LD. During the transition phase, the second period, psychologists and educators translated the theoretical postulations of the foundation phase contributors into diagnostic and remedial procedures. The current period, the integration phase, is primarily characterized by the development of public school programs by educators for the LD.* A schematic representation of these dimensions is presented in Figure 1.

During the foundations phase (circa 1800-1930) physicians investigated the etiology of specific learning disorders, classifying and categorizing the different types, and providing treatment for adults with disorders in spoken language, written language, and/or disorders in perceptual-motor processes. For the most part, information was gleaned from the study of adults with acquired brain damage, such as war wounded or post stroke patients. A concerted effort was made to describe the behavioral characteristics of these patients and to localize specific sensory, perceptual-motor, and language functions to precise parts of the brain. Information of this sort was determined by observing the behavior patterns of the brain injured and correlating these with data acquired through autopsy at the patient's death. These findings were then generalized to a larger population. For example, if a war wounded patient lost his ability in spoken language but remained intact in written language and perception, and if it were found that a specific part of his brain were damaged, then it was often assumed that other cases of dysfunctions in spoken language were caused by damage to that particular part of the brain.

Some physicians, most notably Alfred Strauss and Samuel Orton, hypothesized that children who demonstrated delays in the development of written language, spoken language, and perceptual-motor processes, also suffered from a similar brain dysfunction as the brain-injured adult. They stressed, therefore, that special treatment must be provided for these children with "brain dysfunctions."

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*The growth of this field as represented by professional groups is hardly unique in special education. For example, in the case of the retarded, medical professionals such as Itard, Seqiun, Montessori, Decroly, etc., were initial contributors to the field. Psychologists such as Descurdes, Goddard, Kirk, Wallen, and Witmer later provided more emphasis to the growth of the field. Educators using the theories and programs developed by the medical and psychological professions as a base are currently improving and modifying services in the public schools.

Contributors during this period were Franz Joseph Gall, John Baptiste Bouillard, Pierre Paul Broca, John Hughlings Jackson, Henry Charlton Bastian, Carl Wernicke, Paul Pierre Marie, and Henry Head. These individuals along with others were primarily interested in disorders of spoken language. James Hinshelwood and Samuel Torry Orton investigated disorders of written language, while Kurt Goldstein, Alfred Strauss, and Heinz Werner studied disorders of perceptual and motor behavior.

These individuals were by no means in agreement with each other regarding the specific etiology, classification, and treatment of these learning disorders. In fact, the controversy raging during this period appears to have been much greater than any other period in the history of LD to date. However, despite the lack of agreement on the specific aspects of LD, a group of handicapped individuals in the need of special services had been brought to the attention of other professionals and parents.*

During circa 1930-1960, the transition phase of the field, psychologists and educators attempted to translate the theoretical formulations of the foundations phase contributors into diagnostic and remedial practices. For example, Charles Osgood and Joseph Wepman, following the previous theoretical formulations of Bastian, Wernicke, and others, developed models which they believed explained the spoken language communication process. Wepman then developed the Language Modalities Tests for Aphasia (Wepman and Jones, 1961), while Kirk, McCarthy, and Kirk (1968) utilized a modification of the Osgood Model in the development of the Illinois Test of Psycholinguistic Abilities (ITPA). These models and tests were then used to identify specific disorders in spoken language and numerous remedial programs were developed based on this orientation. Other contributors in the area of spoken language during this period included Helmer Myklebust, Mildred A. McGinnis, and Jon Eisenson.

The development of tests and programs for children with disorders of written language were undertaken during this period by Grace Fernald, Marion Monroe, Samuel Kirk, Anna Gillingham and Bessie Stillman, and Romalda Bishop Spalding. Laura Lehtinen, William Cruickshank, Marianne Frostig, Newell Kephart, Gerald Getman, and Raymond Barsch were concerned with perceptual motor program development.

The test and remedial programs developed were for the most part based upon the theories of selected professionals during the foundations period as well as the individual clinical experiences of the test and program constructors. These professionals believed their tools to be constructed upon sound medical, psychological, and educational principles, so that when appropriately applied, they would benefit "children with suspected minimal cerebral dysfunction."

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*Those wishing to study the contributions of individuals during this period are referred to the work of Luria (1966), Schuell, Jenkins, and Jimenez-Pabon (1964), Head (1926), and Wiederholt (1974) for their reviews as well as extensive bibliographies.

In each type-of-disorder area these professionals were concerned with a subset of specific skills which were viewed as necessary for overcoming learning deficits, e.g., phonemic sound discrimination and spoken language, sound-symbol association and written language, eye-hand coordination, and perception. The tools developed by these individuals were extremely helpful in the expansion and rapid growth of the field during the 60's and 70's.*

As can therefore be noted, by the time Samuel Kirk gave his speech in 1963 and ACLD was formed, much energy had already been extended for the education of brain disorder children, many of whom were then grouped under the specific nomenclature of "learning disabled." And, by the time The Children with Learning Disabilities Act of 1969 was introduced in the U. S. Senate and House of Representatives, a great deal more had been accomplished of both a conceptual and organizational nature.

The integration phase (circa 1963 to the present) was, of course, most notably characterized by the organization of the conceptual aspects of the past into a unified whole--the field of LD. In addition, however, the conceptual make-up continued to expand markedly. In the area of spoken language, proponents of a linguistic orientation received more attention (Chomsky oriented professionals). In the area of written language, the approaches of the behaviorists (Skinner oriented professionals), became an integral part of the testing and treatment approaches for disorders in reading, writing, spelling, and arithmetic. Perceptual-motor aspects of the field received closer scrutiny and criticism.

In summary, the conceptual growth of the field of LD has spanned well over a century. Partial answers to etiology have been discovered, beginnings have been made in the classification and assessment of disabilities in learning, and treatment programs, some of which provide a measure of success, have been developed.

In all, great advances have been made; however, much still remains to be done today. In the next section of this chapter, the major issues in the field today are delineated.

Issues

How a field is conceptualized will have a direct effect on the organizational endeavor of parents and professionals. In turn, the organizations currently in existence have an effect on the direction of the conceptual growth of the field. As these aspects of the LD field are closely interrelated, they are therefore not separated for the remainder of this chapter. Some issues are isolated, however, for a cursory analysis and include: (1) definition,

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*More detailed discussions of the transition professionals can be found in original sources or overviews by Lerner (1971), Myers and Hammill (1969, 1975), and Wiederholt (1975) among others.

(2) territorial rights, (3) assessment and instruction, and (4) teacher competencies.

1. Definition--The 1968 definition of LD cited earlier which had been proposed by the National Advisory Committee on Handicapped Children and its varients has been adequate for the most part in securing funds and establishing laws governing support for the LD population. However, these definitions have not been widely embraced by the professional community as they are believed to be operationally inoperative and subject to wide and varying interpretation. As a result, the field of LD is being quite differently conceptualized and operationalized through the nation.

At one end of a wide continuum of interpretation, some professionals believe that LD individuals demonstrate obvious brain dysfunction. These professionals tend to view themselves as the "purists" of the field. They further postulate that the disabilities exhibited by individuals with this handicapping condition are obvious in clinical analysis and correct identification is easily attainable.

On the other end of the continuum, some professionals are conceptualizing LD as a field which encompasses any pupil experiencing significant school failure who does not fit any other category of exceptionality. These professionals tend to view themselves as the "generalists" of the field. They stress the need for agreement regarding the delineation of the specific abilities to be measured, the development of criterion tests, and the establishment of cut-off inclusion scores.

Regardless of the conceptualization an individual might have of the field of learning disabilities much work remains to be done on the definition. It is imperative and highly probable, however, that this issue will be resolved within the next few years. The reader is referred to Hammill's discussion in this symposium for more detailed information.

2. Territorial Rights--Another issue within the field of LD is concerned with the delineation of "territorial rights" of professionals. Within special education in the last decade there has been an emphasis upon the integration of exceptional students into the regular classrooms. This "mainstreaming" model, as it is most often called, has resulted in some confusions between the regular classroom teachers and the special education teachers who are now being required to "share" the responsibilities for the education of handicapped pupils.

In the case of the learning disabled pupil, this confusion has also transferred over into compensatory, remedial, or special programs offered in the schools. For the most part this is a direct result of the current issue over the definition of pupils with LD. The reader is referred to a symposium series by Lerner (1975) and several of her colleagues on this issue, as well as her chapter in this symposium.

3. Assessment and Instruction--During the 1960's members of the LD field widely embraced and utilized the materials developed by the transition phase contributors. The materials were believed to have been developed upon credible theories and the clinical experience of experts, so were therefore assumed to be particularly useful. Unfortunately, this was all to often not the case.

Recently Hammill and several of his colleagues reviewed the existing research of specific approaches widely utilized in the field and undertook their own research. The result of these efforts was most discouraging. They found that the efficacy of many approaches was simply not substantiated. The reader is referred to Hammill (1972), Hammill and Wiederholt (1973), Goodman and Hammill (1973), Hammill and Larsen (1974a), Hammill and Larsen (1974b), Larsen and Hammill (1975), Hammill, Parker, and Newcomer (1975), and Newcomer and Hammill (1976).

In addition to the efficacy research, Mann (1969, 1970, 1971), Mann and Phillips, (1967) has expressed concern over the theoretical aspects of the approaches advocated by some professionals in the LD field. It has been popular in many assessment and instructional programs to attend to processes rather than academic achievement. For example, The Developmental Test of Visual Perception (Frostig and Horne, 1964) and The Illinois Test of Psycholinguistic Abilities (Kirk, McCarthy, and Kirk, 1968) are purported to measure "perception" and "psycholinguistics" respectively. In each case the molar behavior, i.e., perception and psycholinguistic, are split into what is believed to be their component parts. This approach Mann calls fractionalism. He, as well as others in the field, feels that this is of limited validity and suggests that academics rather than processes be focused upon in pupils with LD.

There is, of course, disagreement to the statements of Mann regarding the validity of some of the theoretical positions in the field and also to the conclusions of Hammill and his colleagues on existing research. These issues, however, are currently providing some difficulty in the theoretical and organizational aspects of the field.

4. Teacher Competencies--The lack of resolution on the issues of definition, territorial rights, and assessment and instruction has had a direct effect on the specific skill delineation of teachers for the LD pupils. Some professionals responsible for teacher preparation programs stress clinical skills while others stress consultant skills. Some programs may lay heavy emphasis on fractionalization and programs whose efficacy is questionable. As a result of these differences LD teachers in the schools vary markedly regarding their strengths and weaknesses. This nonstandardization of teacher preparation programs continues to be a major issue in the field. The reader is referred to Zigmond's chapter in this symposium.

In this section some current issues were discussed regarding programming for pupils with LD. While the issues appear formidable taken in light of past phenomenal growth, both in conceptual and organizational aspects of the field, they are not insurmountable. It should also be stressed that most of these same problems plague every other category of special and regular education. In relation to other areas of applied science, the field of learning disabilities appears well able to resolve these issues, with proper support, in the near future.

The organizational and conceptual growth as well as the issues therein should be kept clearly in mind by those who set out to develop school programs for the learning disabled adolescent. Such information should be helpful in facilitating wise decision making. In addition, due to the relatively infant stages of the development of the field, the issues and controversies specific to some conceptual aspects, and in the interest of quality program development, several additional factors need to be considered.

Factors for Consideration in Program Development

In this section five factors are delineated which are believed to be necessary for successful implementation of secondary school programs for the learning disabled. These are, (1) administrative leadership, (2) group decision making, (3) restricted definition, (4) careful evaluation, and (5) in-service teacher preparation.

1. Administrative Leadership--It has often been documented that leadership in innovation in the schools must come from outside the system. A recent in-depth critical review of research on the effectiveness of schooling, sponsored by the President's Commission on School Finance, has amply documented this statement (Anerch, Carroll, Donaldson, Kiesling, and Pinces, 1972). In the field of LD, parents have often had to resort to extreme measures to insure that their child received an adequate education.

To counteract this trend in establishing new programs in the secondary schools, it is particularly important to have strong school administrative leadership. For a period of time, as with all changes, there will be some resistance and leadership will have to be exerted. This leadership should come from the state departments, the school boards, district administration, and individual school building principals. An individual should also be appointed to assume day-to-day district coordination and leadership throughout the initial periods of program development.

2. Group Decision Making--It is critical that professionals, students, and parents, who will be affected most regarding the beginning of secondary programs for the learning disabled, play a part in planning for new programs. In support of this statement, Pellegrim (1966) in his review of the literature, concluded that change is more likely to be accepted if it is implemented slowly and if people affected are involved in planning the change. Gallaher (1964), Lin, Leu, Rogers, and Schwartz (1966), and Havelock(1970) also stress the importance of group decision making.

In planning for secondary programs, therefore, it is expedient and efficient to form a planning committee. This committee should be composed of: (A) parents, (B) junior high and senior high teachers, (C) English language arts, remedial reading, and math specialists, (D) counselors, (E) members of the Board of Education, (F) representatives of business education and vocational education, as well as health education programs, (G) social workers, (H) members of the business community, (I) psychologists, (J) directors of special education, etc. The agenda should include a statement of the problems, a review of current state rules and guidelines plus future projections, and an overview of other programs in the state or nation. After this introduction, plans should be made by the committee regarding future directions, roles, and responsibilities should be assigned, and plans for continual interaction between the committee members should be established.

3. Restricted Definition--In the initial planning of secondary programs it is wise to apply a restricted definition to the population--generally speaking, somewhere around 3 percent. The reasons for this are numerous. First, to use the definition in such a way as to include a large number of pupils, would result in serious financial difficulties in the system (King, 1974). Second, during the initial stages of program development it will be necessary to develop techniques, curricula, tests, teacher skills, etc. A large LD population would decrease the amount of time necessary for quality program and technological development. Third, our primary purpose in special education is to serve those handicapped pupils in the schools most in need of support. A secondary purpose is to aid pupils with mild problems in the regular classroom. It is therefore necessary to focus in upon the adolescent with severe and moderate disabilities at this point.

4. Evaluation--It is safe to state that many of the tests and treatment programs used in education need to be carefully evaluated, discarded or improved, and their usefulness determined over other approaches with specific pupils. This is true of all education and the field of LD is no exception as noted in the issues section of this chapter. In addition, the types of school programs utilized in education need careful evaluation for individual pupils such as resource programs, work-study or career programs, self-contained academic classes, etc.

As little has been done regarding overall program development for the adolescent, careful evaluation procedures should be a part of any initial effort. For aspects of the program concerning the evaluation of treatment procedures, a monograph by Campbell and Stanley (1963) might be helpful. For overall program development, a recent monograph by Senf and Anderson (1973) would be useful.

5. In-Service Preparation--Brutten, Richardson, and Mangel (1973) have noted that special education teachers are by-and-large trained in colleges and universities to work with elementary and intermediate age children. As a result,

many LD teachers simply will not have the training to work with the adolescent. There is a great need for in-service training on techniques and approaches to adolescents with this handicapping condition. This training should also be directed in part to the regular classroom teachers, parents, etc.

Our nation's public schools vary in many aspects, e.g., amount of special services, number of alternative curriculums in the regular program, skills and attitudes of parents, teachers and administrators, availability of ancillary and support personnel, finances, etc. A clear reading of the existing state of affairs on these various dimensions within each district also needs to be made. Once this is accomplished, the issues in LD considered, and the factors isolated in this section adhered to, the successful implementation of a program for the adolescent with LD is in part assured.

Summary

In this chapter the history of LD was presented relative to conceptual and organizational growth. In addition, some current issues were delineated which have an effect upon the direction of the field. It was also pointed out that little has been done for the adolescent with LD and some suggestions were made concerning future developments of programs for this handicapped population.

While much work remains to be done, perspectives on the field of LD have indicated that the physical resources and methodologies we now use for our students are richer than ever before. They are richer than those of Charles Osgood for they include his contributions and others stimulated by his work; richer than Grace Fernald's work for they include her techniques for remediating disorders of spoken language; richer than Alfred Strauss because they embrace all of his contributions. Progress is real despite our current problems (and whining) as we today are born of a richer heritage and born of a higher level which the accumulation of knowledge supports. With this richer heritage and higher level comes a responsibility. This responsibility demands that we improve the educational opportunity of the LD adolescent in the next decade.

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PROCESS REMEDIATION WITH SECONDARY LEARNING DISABLED CHILDREN

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Although special educators have exhibited considerable diversity in their attempts to define a "learning disability," or to delineate the specific population of children who demonstrate "learning disabilities," a common thread runs through nearly all definitions. An emphasis on deficits, deficiencies, disorders, or disabilities in one or more psychological processes is believed essential to the acquisition of academic skills.

The neuropsychological definition proposed by Johnson and Myklebust (1967), while differing from other definitions in terms of hypothesized etiology, still states that "the problem is one of altered processes" (p. 8). Kirk (1962) defines a learning disability as "a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling, or arithmetic" (p. 263).

Gallagher (1966), while apparently preferring the term "developmental disability" and speaking of children with "developmental imbalances," states that such children exhibit a "developmental disparity in psychological processes related to education" (p. 28).

An obvious emphasis on process disorders is apparent in the more commonly agreed upon definition formulated by the National Advisory Committee on Handicapped Children (1968). The Committee stated that,

> Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage. (p. 4)

There are considerable differences of opinion regarding the specific terms to be used to describe such children, the incidence of such conditions, the etiology of such conditions, and the extent to which certain groups should be excluded from the definition. There is apparently an agreement, however, that a certain group of children demonstrate disability, disorder, or impairment in one or more of the psychological processes relevant to education.

The contention that learning disabled children demonstrate process disorders or deficits, has led to wholesale efforts to remediate those processes. Most remedial efforts have been at the preschool and elementary level, and quite rightfully so. The very idea of process remediation with adolescents is quite literally a kind of conceptual quagmire.

Process Remediation with Secondary Children

Few studies report the results of attempts to remediate processes with learning disabled children at the secondary level for both theoretical and practical reasons. While process remediation with younger children is a questionable practice, even those who propose ability training for younger children state that such practices will be ineffective for secondary. Their arguments are based largely upon the theoretical contention that those processes relevant to learning have matured by age nine, ten, twelve, or fourteen. Wepman, Cruickshank, Deutsch, Morency, and Strother (1975), for example, state that,

> For the child above nine years of age, intervention will need to be thought of as mainly compensatory rather than corrective. Where perceptual problems of discrimination, memory, sequencing, closure, or spatial orientation still exist, direct remediation is unlikely to be effective, since basic processing ability is by this age as developed as it ever will be. (p. 314)

Practically, process deficits must first be identified if they are to be remediated. Identification of deficits characteristically has its foundation in the results of differential psychoeducational assessment. Most tests which are typically used to identify process deficits are inappropriate for use with secondary age youngsters. The Illinois Test of Psycholinguistic Abilities is designed for use with children between two and ten years, six months of age, the Bender Visual Motor Gestalt Test for ages five to ten, the Frostig Developmental Test of Visual Perception until age eight, etc. There are few measures of specific developmental processes appropriate for use with secondary youngsters.

The issue of process remediation with secondary students raises fundamental theoretical and practical questions. The remainder of this paper addresses those questions.

Do Processes or Abilities Exist?

A variety of psychological processes has been seen as causative of or contributive to children's failure to acquire academic skills (profit from instruction). We have observed differences in the extent to which children profit from instruction and have attributed such differences to differences within the children, and to differences in the way in which they process information.

The very notion of learning ability (or abilities) is abstracted or inferred from observations of performance in learning situations. Substantial individual differences long have been observed whenever any group of individuals engage in an identical experimental routine, whether that routine be as simple as classical conditioning or as complex as classroom learning. When certain individuals fail to demonstrate profit, and when such failure cannot be attributed readily to overall developmental retardation, emotional disturbance, sensory impairment, or environmental deprivation, differences in performance are attributed to differences in process maturation, development, or nurturance. Essential learning processes are, according to Kass and Myklebust (1969), "those currently referred to in behavioral science as involving perception, integration and expression either verbal or non-verbal" (p. 399). Processes cited as causative of or contributive to differences in educational performance include a variety of cognitive processes (Bortner, 1971, Marietta, 1970), perceptual processes (Buktenica, 1971, Crawford, 1966, Frostig and Orpet, 1969, Jander, 1971, Koppitz, 1970, McQuarrie, 1967, and Sabatino, 1969), language or psycholinguistic processes (Kass, 1966, Keenan, 1968, Kirk, 1966, and Kirk and Kirk, 1971), and attentional processes (Eisenburg, 1966, and Oettinger, 1971). In most instances, learning disabilities have been attributed to either specific process disabilities or to combinations of disabilities.

While restricted primarily to work with elementary age children, considerable effort has been expended in attempts to delineate the psychological and/or developmental processes believed essential to learning. In some instances, educators have relied heavily on psychological and developmental theory in describing those processes relevant to education. Kirk's reliance upon Osgood's communication model in the study of psycholinguistic disabilities in children serves as the clearest example. In other instances, processes seen as causative of learning difficulties were the result of reliance upon earlier research designed to delineate learning characteristics of mentally retarded or brain injured children (i.e., the earlier investigations of Goldstein and Sheerer, and Werner and Strauss).

In nearly all cases, however, the identification of specific process deficits or disabilities has been a post hoc process. Tests often constructed for use with adults, and nearly always constructed with no theoretical basis, were administered to groups of children in attempts to identify deficits in those who demonstrated difficulty in learning. Processes identified as educationally relevant were those which could be identified by tests. In this sense, the study of learning disabilities has been a psychoeducational and psychometric study delimited only by the existence of tests or subtests said to measure specific characteristics. As more and more tests have become available, the field has been characterized by increasing fractionation of abilities. Deficits are test-identified, and indeed test-named; deficits are defined in terms of "accepted diagnostic procedures in psychology and education" (Kass and Myklebust, 1969, p. 399).

The vast majority of empirical evidence for the existence of processes and process deficits is the result of a considerable body of descriptive, comparative, and correlational research. Educators have observed children experiencing difficulty in learning and have administered batteries of tests in efforts to describe the learning characteristics of those children. McLeod (1965), for example, reported 260 behavioral and learning characteristics associated with failure in learning to read. Similarly, Coleman and Sandhu (1967) used tests to describe 364 children referred to a university clinic for learning disorders; Thorum and Riley (1971), using the ITPA, described the psycholinguistic abilities of Navajo school children; and Knights and Hinton (1969) described the clinical and psychological test characteristics associated with "minimal cerebral dysfunction."

Psychological and educational tests have been administered to criterion groups of children in a comparative effort to identify those characteristics which significantly discriminate between groups. Kass (1966) administered the ITPA to "good" and "poor" readers in an attempt to identify the psycholinguistic correlates of reading difficulty. Similarly, Cromer and Weiner (1966) investigated idiosyncratic response patterns in "good" and "poor" readers. Gallagher (1967) compared the test performance of brain injured and non-brain injured mentally retarded persons, while Hutchison and Clark (1968) reported differences in auditory and visual discrimination skills between normal and articulation defective children.

A third body of descriptive research has consisted of attempts to predict the success of students in academic situations. DeHirsch (1966) for example, administered 37 tests to 30 boys and 23 girls in an effort to identify those tests or test-identified characteristics which best predict success in reading.

Other investigations have been post hoc as opposed to predictive. Numerous studies, summarized earlier by Ysseldyke (1973), have correlated children's performance on process or ability measures with their performance in school, as measured by scores on standardized achievement tests.

Finally, several studies have employed factor analytic designs to identify patterns of abilities or disabilities in children who are experiencing academic difficulty. Leton (1972) factor analyzed the ITPA and MISC scores earned by learning disabled children, while Ayres (1965) reported patterns of perceptual-motor dysfunction in children on the basis of their performance on a battery of tests. Sabatino (1968) used 23 measures to assess the information processing behaviors of 45 learning disabled boys, ages seven through 12. On the basis of intercorrelations among the various subtests, he reported that perceptual disorders may occur as single disabilities or as auditory-visual-integrative "perceptual errors." Varimax rotation of the correlation matrix (a factor analysis using 23 measures with 45 children) revealed four major categories of learning disability. Sabatino and Hayden (1970) used a similar battery with 243 "learning disabled" children divided on the basis of chronological age (over 9-6 and younger than 9-6). They factor analyzed the two resulting correlation matrices, identifying different factors for the two groups. Sabatino and Hayden stated that their results "supported the generally held developmental hypothesis that six to nine years is the maximum growth period for perceptual functional performance" and that after age ten, integrated language skills become of prime importance.

Evidence for process deficits is at best incomplete and hypothetical. A variety of test-identified and test-named processes has been shown to describe populations of atypical learners, to discriminate between specific criterion groups, to predict academic failure, and to be related to academic success or failure. The evidence is, however, simply correlational evidence. Educators have violated a fundamental statistical principle in assuming that correlation implies causation. Psychological and developmental processes which correlate with academic success have been viewed as causative of success or the lack of it. The empirical support for the very existence of processes is based upon testimonial arguments by "experts," and upon the results of descriptive research fraught with serious methodological errors and, in the majority of cases, incorrectly interpreted.

Mann (1971a) has taken strong issue with those who advocate process or ability assessment and training. He states (1971a),

> What does not exist cannot be trained. Abilities are best considered referent terms that help to categorize the ways in which people behave and that may provide useful leads in evaluation and practice. However, 'abilities,' and specifically test-identified 'abilities,' are increasingly and alarmingly coming to be regarded as real entities--processes and causative factors--by many of us who deal with them and, as a consequence, much of our effort is being misdirected into training them instead of the children who have learning problems. (p. 323)

Even if processes are believed to exist and even if learning disabled children are believed to demonstrate process deficits, a number of additional basic questions relative to process remediation need to be dealt with.

Can Processes or Abilities be Measured?

Learning disabled children are seen as demonstrating process deficits as determined by disparities in performance on psychoeducational tests. Kass and Myklebust (1969) define significant deficits "in terms of accepted diagnostic procedures in psychology and education." While no one specifies the degree of deficit necessary to be considered learning disabled, Bateman's (1965) definition of learning disabled children as those who "manifest an educationally significant discrepancy between their estimated intellectual potential and actual level of performance related to basic disorders in the learning processes" best typifies this thinking.

Reliance upon deficit scores in the identification and diagnostic evaluation of learning disabled children is at best a haphazard practice. Salvia and Clark (1972), taking into account the reliabilities of specific aptitude and achievement tests, and using basic statistical formulas to compute the reliabilities of deficit scores, have illustrated the fact that such practices result in considerable misidentification.

Most attempts to identify process deficits or disabilities use norm-referenced tests in the identification process. The tests are used in an effort to identify those who are significantly deviant in one or more processes to warrant special attention. Yet, despite the existence of normative uniformities in development, it is possible to identify both wide variations within the range of normality and innumerable individual patterns of development.

Ausubel (1957) has commented on attempts to identify deviation from normal development, by stating that,

> Developmental norms are valuable because they provide a standard or frame of reference for evaluating and interpreting the status or current behavior of an individual. They can be misused if the range of variability is overlooked; if expectations for all children are geared to group averages; if substantial parallelism is expected between component rates of growth; if they are unwarrantly applied to individuals who could not be included in the sampling population; and if individual guidance is predicated upon normative comparisons alone to the exclusion of information regarding individual patterning.

Ysseldyke (1973) and Ysseldyke and Salvia (1974) have illustrated that currently used process or ability measures lack the necessary reliability and validity to be used either to make programmatic decisions regarding children or to identify diagnostic strengths and weaknesses. Mann (1970, 1971b) and Mann and Phillips (1967) have repeatedly argued against fractional practices in special education, believing that we do not as yet have the precision of measurement necessary to engage in such practices.

At the elementary level we have been unable to precisely, reliably, and validly assess specific processes or abilities. At the secondary level, few tests exist which would allow us to do so. Even in the absence of such empirical support, the market is currently flooded with "how to do it" books and articles on diagnostic-prescriptive teaching, the making of differential curricular decisions for handicapped children on the basis of the results of psychoeducational assessment (Bateman, 1967, 1968, Carter and McGinnis, 1970, Dechant, 1968, Ensminger, 1970, Frostig, 1967a, 1967b, Grzynkowicz and Sturch, 1969, Kirk and Kirk, 1971, Roswell and Natchez, 1964, Vallett, 1969, and Wilson, 1971).

Do Processes Develop Into Adolescence?

If process remediation at the secondary level is to be a viable practice, then it will be necessary to demonstrate that those processes continue to develop into adolescence. Growth in different processes or abilities tapers off at different ages dependent upon the particular processes being considered and the device used to measure them. Fluctuations in rate of growth may be caused (a) by factors relevant to the standardization, reliability, and validity of specific measuring instruments or to situational variability associated with test administrations, (b) by significant changes in environment, and (c) by idiosyncratic irregularities in the process of growth that occur even in a relatively constant environment (Ausubel, 1957). Performance on specific intellectual instruments tapers off at different ages, dependent upon the instrument used. Children's performance on the Blind Learning Aptitude Test (Newland, 1969), a test assessing primarily those fundamental psychological processes necessary to learning, tapers off at about age eleven. Performance on the Army Alpha and the Concept Maturity Tests, tests which sample primarily the products of learning, continues to increase until about age 50 (Bayley, 1955, Owens, 1953).

Most evidence for the development of processes comes from research on the development of intellectual processes. Guilford (1967, p. 419) states that "the typical growth curve is one of negative acceleration, in which averages for age groups cease to gain further at various ages in the late teens." However, Guilford qualifies his observations by stating that,

> The fact that the average reaches a maximum level at a certain age does not mean that all members of the population stop growing at that age. Some probably keep on developing while others decline, and a balance is reflected in the means. (p. 419)

The fact that different abilities reach maturity, on the average, at different ages was illustrated by Thurstone and Ackerman (1929). They reported that the average child reaches 80 percent maturity in specific processes at the following ages:

Perceptual Speed	12
Space	14
Reasoning	14
Memory	16
Numerical Facility	16
Verbal Comprehension	18
Word Fluency	Later than 20

(from Guilford, 1967, p. 420)

Current research evidence from developmental psychology indicates that processes, at least intellectual processes, mature on the average at different ages and that there is considerable variability for specific individuals.

Are the Processes Used in the Same Way?

In reference to younger children, learning disability theorists typically believe that process maturation is a necessary condition for academic success. At least they typically state that the child who demonstrates process disabilities or disorders can expect to have academic or learning difficulties. The child is presumed to use fundamental processes or abilities to acquire academic skills. An obvious question relevant to the remedial education of secondary students is whether those processes are used in a similar way at the secondary level.

The obvious difference between an elementary learner and a secondary learner is that the latter has a much longer learning history. Estes (1970) states that,

> Except perhaps in infancy, a great part of the variance in rates of learning between individuals must be attributable to differences in the results of past learning. Observed rates of learning in most situations, we now realize, depend to a major extent upon habits or strategies of selective attending, seeking of information, coding and recoding of stimulus information, rehearsing, and the like, and the manner in which these are organized. Individual differences in these habit systems may indirectly reflect differences in capacities, but they must also be strongly determined by variation in motivational systems and in previous opportunities to learn. (p. 31)

Gagne (1968) speaks of the cumulative-learning hypothesis. New learning at any age is dependent on the recombining of previously acquired discriminations, behavior sequences, principles, and concepts. Learning at the secondary level is more complex in terms of these factors than is learning at the elementary level, primarily because of differences in learning history.

Remedial efforts with adolescent youngsters frequently fail to take into account the learning history of the child. A child who experiences difficulty at the secondary level, especially difficulties presumed to consist of processing difficulties, is quite typically one who has experienced a long history of academic failure. Children who experience considerable difficulty learning to read, for example, may well experience considerable negative conditioning to visual/verbal stimuli. The negative conditioning may quite understandably generalize to the agent who dispenses such stimuli, the classroom teacher. Yet remedial efforts are largely visual/verbal in nature and administered by the teacher.

We simply do not know much about the extent to which processes, if they exist and develop into adolescence, operate in the same way in relation to learning that they purportedly do in the younger years.

Can Processes be Remediated?

Largely because of an absence of psychometric instruments for delineation of processes in secondary age youngsters, there have been few attempts to remediate processes at the secondary level. Examination of our track record with younger children, however, does not provide impressive support for process remediation.

Ysseldyke (1973) summarized research to that time on diagnostic-prescriptive teaching. Most research on diagnostic-prescriptive teaching has employed either gain-score or aptitude-treatment interaction designs. Because of fundamental weaknesses in both designs, it was concluded that there is little empirical support for diagnostic-prescriptive teaching. Ysseldyke and Salvia (1975) have more recently explored the methodological problems in aptitude-treatment interaction research. There is, to date, little empirical support for the contention that instruction can, or should, be differentiated on the basis of specific pupil aptitudes.

Should Processes be Remediated?

The answer to the last question is a qualified "no." Currently available assessment devices lack the necessary precision and sophistication to be used to fractionate abilities in children. Remedial education is directed to remediation of something. If we cannot adequately identify what it is we wish to remediate, then how can we proceed to provide remedial instruction?

Attempts to remediate processes have come about as a result of our having defined "learning disabled" children as demonstrating process deficits. Such deficits are presumed deficits and their identification is based upon the results of psychoeducational evaluations. Yet tests cannot sufficiently delineate processes. The results of descriptive and correlational research have somehow led us to believe that correlates of academic difficulty are indeed causes of such difficulties. Remedial efforts have employed evaluative designs replete with methodological weaknesses and inadequate controls. Indeed, the entire developmental history of process remediation has been a process in itself characterized by numerous logical fallacies.

So What?

I cannot end merely pointing out that there is little empirical support for process remediation, ability training, or whatever we may choose to call it. I firmly believe that it is incumbent upon special educators to use and insist upon the use of validated programs with handicapped youngsters. To date, ability training programs are at best experimental programs and the use of unvalidated experimental programs in the public schools is quite clearly and simply experimentation with human subjects. As such, their use requires strict adherence to, and compliance with, American Psychological Association Ethical Standards regarding research with human subjects.

Special educators do, of course, have an alternative. They can choose to stick to curricula and to use validated task analytic procedures (see Ysseldyke and Salvia, 1974). We do have a considerable body of research to support such practices.

Additionally, I do firmly believe that we need to devote our scientific efforts to research designed to identify, reliably and validly, those processes which may be relevant to learning and to establish empirical links between observed differences in children and the relative effectiveness of different instructional strategies, materials, techniques, and programs. Our efforts can best be spent at the younger age levels.

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PREPARING TEACHERS FOR SECONDARY LEARNING DISABILITIES PROGRAMS

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In the past few years there has been a dramatic upsurge of interest in providing public school services for secondary students with learning disabilities. The tremendous increase in the number of secondary programs has been widely accepted as appropriate and inevitable; learning disabled youngsters outgrow the elementary programs and need supportive services as they enter middle and high schools. To this teacher educator, however, the growth is discouraging for several reasons.

In the first place, it is possible that this need for secondary programs, which is real and serious, indicates our failure with these youngsters in the earlier grades. It has taken us many years, but professionals in learning disabilities are slowly beginning to accept the notion that a learning disability does not describe a condition, an irritant, or an unwanted characteristic possessed by a child. As Frierson (1974) suggests, a learning disability refers to a relationship between teacher and student. Essentially the relationship is as follows: in the presence of information, two individuals interact in hope that the one, who may be called the learner, might become more proficient in understanding that information. Failure to accomplish this objective, i.e., failure to learn to read, to calculate, to write, to spell, etc. rests clearly on the interaction or the relationship between the two individuals.

In this concept, failure of a learner to learn is as much a consequence of the teacher's inability to change the interaction as it is the learner's inability to benefit from the relationship which exists. When we admit that early identification and treatment of learning disabilities does not produce a "cure," we admit the failure of this teacher-learner relationship. And a child who must graduate from an elementary learning disabilities program into a secondary learning disabilities program is the product of this failure. It is appalling to witness students who have been in learning disabilities programs for three years or more, who still read at barely a primer level.

While there is no question that such children will need help in the secondary school, a far more fundamental issue is the kind of special education program at the elementary level that has allowed this to occur. Providing a secondary level learning disabilities program may be the easy way to avoid a harsh reevaluation of elementary programs, elementary learning disabilities teachers, and their preparation but it is certainly not the answer.

The rapid growth of secondary learning disabilities programs is discouraging for a second reason. Many students in secondary learning disabilities programs are there because the mainstream of education has not yet recognized the need for individualized and personalized schooling and schools. At the secondary level this is even more the case than in the elementary grades. The adolescent with a learning disability is a student who cannot "make it" in the mainstream of his middle school or high school without special help. The standard complaint from parents and special teachers is that the staff of a secondary school is curriculum or content oriented rather than student-oriented, and that there is little room for flexibility and little attention paid to individual differences and individual needs. When individualization is introduced, it consists merely of an endeavor to adjust the rate or pace of learning to differences in pupil capacities and previous levels of achievement; all students are still required to master much the same minimum body of content, to acquire the same skills and competencies, to participate in the same learning activities, and to attain much the same outcome (c.f. Saylor and Anderson, 1974).

We must consider the possibility that there would be no need for a secondary learning disabilities program if middle schools and high schools adopted a more student-oriented approach; that children with special needs would not need "special" programs if mainstream secondary schools offered a broad curriculum, not only in the academic areas but in extrainstructional programs and community experience; if programs in middle and high schools were highly flexible, with ample opportunities for student participation in planning and carrying on learning experiences; if considerable attention were given to helping students develop and appraise values, to apply them in life situations and to redefine them in terms of American ideals; if opportunities were given for meaningful creative experiences in the arts, literature, handicrafts, sports, home arts, languages, as well as in the more academic disciplines; and if orientation to careers were considered an appropriate function of the mainstream secondary school.

Certainly such changes in our secondary schools would reduce the number of students with special learning problems for whom trained secondary level special education personnel would be needed. And we must also consider whether, by preparing "special" teachers, in a "special" program in the university, who are willing to accept responsibility for hard to teach students, we absolve the mainstream teacher of the need to develop those attitudes and skills which would help him/her to move in the direction of a more personalized curriculum. Perhaps we are even slowing the process of bringing about much needed change in secondary schools.

The failures of elementary learning disabilities programs and secondary schools certainly cannot be ignored. In this paper, however, we will work from the premise that even if elementary level learning disabilities programs improved, and even if high schools became more personalized learning environments, there would still be adolescents with learning and behavior problems who would find their way to a learning disabilities teacher. Since special education teacher preparation programs have not kept pace with the growth of secondary services (Kinnison, 1971) it is likely that this teacher would not have been specifically trained for his/her position. There is no literature, research or speculative, on whether or not learning disabilities teachers, trained with an emphasis on the elementary grades, are successful when placed in secondary schools, yet it is generally assumed that this practice is unacceptable (for further discussion of this point, see review by Clark and Olverson, 1973).

There is a cry from state departments of education, from special education directors and supervisors, from parents, from teacher educators and from teachers themselves, for training programs directed specifically at the secondary level. There are several assumptions behind this appeal; that teachers trained at the elementary level are not successful with secondary-aged youngsters; that their success rate with the secondary student is poorer than with the elementary student; that the teacher prepared specifically for work with the secondary student should have different skills from the teacher prepared to work with younger students, and that this secondary teacher would be more successful; and that we know what we mean by "successful," i.e., that we can define what it is we want the teacher of the secondary-aged learning disabled student to accomplish or what it is reasonable to expect from a secondary learning disabilities public school program. A thorough search of available literature uncovered no empirical data which could validate any of these assumptions. Nonetheless, teacher preparation programs have responded to the appeals by developing training sequences aimed specifically at the teacher of secondary students.

But the continuing debate on definition, assessment and instructional strategies has had a direct effect on teacher preparation: there is little agreement among teacher educators on the role of the secondary teacher and on the specific competencies needed to fill this role. Some programs emphasize teaching skills, some emphasize consultative skills. Some programs stress career and vocational preparation, while others stress academic learning. The products of most programs are to be teacher consultants or resource personnel who can give direct service to students, particularly in the basic skill areas, but also consultative services to regular educators who have learning disabled youngsters in their classes. With varying degrees of emphasis, most programs are likely to graduate teachers prepared:

a. to have knowledge of the educational, social, and affective implications of a learning problem in the secondary student and to deal in some way with all three

b. to assess the secondary level learning disabled student with appropriate informal, criterion-referenced, or competency based tests as well as formal, standardized, norm-referenced assessments

c. to write educational prescriptions utilizing the assessment information

d. to be proficient at teaching in all academic areas, particularly in the skill areas of reading and math

e. to be familiar with instructional programs at all levels

f. to be able to create age-appropriate instructional materials which may not be available commercially

g. to be familiar with the content of a high school curriculum and be prepared to provide useful suggestions for modifications in curriculum content and teaching approach to accommodate students with particular learning styles and abilities

h. to be proficient at testing readability levels of textbooks so that he/she may help in selection of assignments for learning disabled students

i. to demonstrate effective classroom management strategies including the use of token economies or contingency contracting

j. to be able to communicate effectively with other teachers

k. to assume the role of child advocate and interact effectively on the child's behalf with the other members of the school staff

l. to know the functions of community and governmental agencies, volunteer and non-profit groups and parent organizations which provide supportive services to learning disabled students

m. to provide a career orientation within the special program and to help students to deal with the problem of "where will I go from here?" (University of Pittsburgh, 1974)

The nonstandardization of teacher preparation programs is not simply a matter of academic freedom; it is an issue of major concern in the learning disabilities field. To this author it suggests that we do not have a clear idea of what we are preparing the teacher to do, with whom he/she is to do it, and what he/she must know to do it well. And at the present time, we do not have any reason to believe that our graduates are or will be successful. Follow-up data on teacher effectiveness is sorely lacking.

In the decades ahead, teachers will be increasingly accountable for their behavior, and recognition of this fact has led university programs in learning disabilities, as in many other areas of teacher education, towards a competency base. In its simplest form, a competency based teacher education program may be defined as one that specifies objectives for training of teachers in an explicit form and then proceeds to hold prospective teachers accountable for meeting those objectives (Anderson, et al., 1973). The advantage of this model over those of the past is the clearer specification of learning goals, teacher behaviors that can best affect those goals, and attitudes and feelings that contribute to a healthy learning climate.

As the teaching profession moves toward accountability, the point of view represented by a competency based approach assumes the following (Dodi and Schalock, 1973):

a. rigorous criteria for knowing as well as systematic specification of what is to be known (knowledge) must be a part of teacher education

b. knowing and the ability to apply what is known (performance) are two different matters

c. the ability to attain specified objectives with learners (product) represents still another kind of competency that will be required of teacher candidates

d. the criteria for assessing (knowledge, performance and product) should be rigorous, systematically derived, and explicitly stated

e. assessment of knowledge, performance, and product must be described and made systematically

f. only when the prospective teacher has the appropriate knowledge, can perform in a

> specified manner, and can produce anticipated results with learners will he/she meet the competency based requirements. Professional licensure of teachers will be based on demonstrated competencies in terms of teacher knowledge, behavior, and specified pupil outcomes

To design and implement a competency based teacher preparation program for secondary level learning disability students, we must first be prepared to specify what knowledge we will expect of the teacher, what teacher behaviors are to be demonstrated and what pupil outcomes are to be expected upon completion of the program. At the present time this specification, as exemplified by the competency list given is based entirely upon the "expert opinion" of teacher educators, state department leaders, and/or teachers in the field. "Expert opinion" is certainly an appropriate place to begin a definition teaching competencies for the secondary level teacher of learning disabled students, but opinion alone does not constitute sufficient validation that these knowledges and abilities are the critical teaching skills needed (Shores, et al., 1973). Before a competency statement (written in behavioral terms) can be considered valid, it should be demonstrated that successful teachers actually engage in that behavior or have that knowledge, and that this knowledge or skill discriminates between successful and unsuccessful teachers, defined as producing the desired effects in the learners performance.

Unfortunately, there is no empirical data for the competencies listed above. Few research efforts have been directed towards the secondary student with learning disabilities, and even fewer toward the competencies his/her teacher should possess. It is necessary to design research in which the curriculum, the teachers' behaviors and the learners' performance are dynamically related (Rosenshine and Furst, 1971), experimental studies in classroom or lab settings in which there is a systematic manipulation of teacher knowledge and skills with observation and measurement of the effect on the learner's performance. This research would address the question of the existence and effects of special teacher competencies on the learner's performance and would become the basis for defining competencies for a teacher preparation program. And the data would permit other questions to be answered: are the special learning needs of the adolescent with a learning disability any different from those of his counterpart in the elementary school? Are the teacher behaviors which satisfactorily meet these needs unique to the secondary teacher? Are they unique to the teacher of the learning disabled youngster; or are they the same knowledge, behaviors and skills needed by any special educator, or any mainstream educator as well?

The author is not suggesting that institutions abandon their efforts at preparing secondary personnel nor that they curtail attempts to make programs competency based until this research is available. On the contrary, I believe that the trend toward competency based instruction has been responsible for significant advances in special education teacher preparation, particularly in terms of setting specific program objectives, developing innovative teaching strategies, and the evaluation of both teachers and programs in relation to objective criteria (Shores, et al., 1973). Nevertheless, we must accelerate research efforts aimed at validation of program and of teacher competencies. Until we can answer some of the questions raised in this symposium, with empirical data rather than "expert opinion," speculation, or passion, the programs we design will be inadequate.

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